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LECTURES.

PATHOLOGY OF PHTHISIS PULMONALIS.

A Lecture delivered at the Post-Graduate Medical School of Chicago, January 23, 1891.

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Mr. President, Ladies and Gentlemen :—I must first say that when I left home last evening I was not aware of what was before me; I have not come prepared to make a set speech this evening, and if you find what I say rather disconnected, I hope you will excuse me.

What I want to say in connection with this subject is on the part of the pathology and etiology of the disease, and how we have arrived at the place we now are, in which we consider we have done something towards curing the disease called consumption; I use the word consumption in the generic sense as applied to those diseases that are found associated with consolidation and decay of the lungs, together with wasting and emaciation of the body. We know that in making a post-mortem examination of a case of disease of the lungs we find a variety of changes there, appearances indicating in some cases that the disease has not progressed very far, while in others we find large consolidations, and in some parts large cavities caused by breaking down of this consolidation. So far we have only seen, with the naked eye, one appearance which is constant, and that is consolidation. Now if we stop there, at the naked eye appearance, we have simply one form of disease, consolidation of the lung with breaking down afterwards and formation of cavities; but when we bring in the aid of the microscope, and prepare sections cut from the lungs, we find a totally different state of things. I think this is one of the most important problems that we have before us at the present time, that is to say, whether we are to believe in the unity or duality of this disease. We know that the unity of this disease has been taught by a large number of men who fully believed in it, but I have been working on this subject for a number of years, and I simply cannot satisfy myself that it is so. I would point out that if you take those cases where there is consolidation of the lungs, and carefully harden those lungs, cut sections from them, stain and prepare them for the microscope, and examine them, you will find that they divide themselves into two kinds. You will find that the one is inflammatory, and the other a new growth in the lungs, which is tubercle. I have taken these photographs from cases of acute miliary tuberculosis, in which you can see the process in the early stage, and I think they will show you the distinction. It seems to me that at the present time it is an important question as to whether there are two distinct diseases or not. You are aware that some dogmatic writers have insisted upon the unity of phthisis, but I have no hesitation in saying, from a careful study of diseases of the lungs, that this is not the case. There are two distinct forms of disease in the lungs, one the inflammatory breaking down, the other a new growth. I would therefore as a basis, divide lung diseases into two kinds, the inflammatory and the tubercular. And I would then, as a kind of sub-class to these, add acute miliary tuberculosis, which must be distinguished from these because its symptoms are so different; it does not run a long course. It never causes ulceration into the respiratory passages, and in cases of acute miliary tuberculosis you never get bacilli in the sputum, therefore I would make a sub-class of this. Take the inflammatory form of phthisis; we all know the form of pulmonic phthisis where you have in the first place a catarrhal pneumonia, there may be bronchitis, and extension of that into the lungs and an inflammatory condition of the lungs which ends in consolidation there. This consolidation may clear up and leave the lungs as whole as they were before, provided the damage done by the inflammatory process has not been so great as to destroy the vitality of that part of the lungs affected; but if, on the other hand, consolidation has gone on and the flow of blood through the parts has been arrested by the inflammatory process, and the damage to the lung is so great that a part of it is destroyed, that is dead, we then have retrograde changes resulting in what we call caseation. There is then the inflammatory form; this, if carried out to the destruction of the parts, ends in caseation and liquefaction,

which ejected through the bronchi leaves a cavity in the lung. That seems to me perfectly clear; I think that is the experience of all of us.

In the case of tuberculosis we have a totally different thing, we have there the formation of tubercles. Now I must explain what I mean by tubercles. It is a new growth in the lungs composed of a fibroid tissue; I call it fibroid tissue because I am not clear that it is fibrous tissue. The reaction is exactly the same as that found in fibrous tissue; it is distinctly a new formation in the lungs, and it is not of an inflammatory character, it contains one or more giant cells. This is distinctly a new formation; in a well-stained specimen it looks something like an elastic tissue, but I do not think it is ordinary fibrous tissue. There is this peculiarity in regard to tuberculosis, you do not get a large tubercle, when you first see the consolidation it is not one single tubercle, but an aggregation of small tubercles. A tuberculosis grows in the lungs by beginning as one or two small ones together, which gradually increase in size, and numerous smaller ones are formed around the edges, so you get a large mass which looks like a consolidated form of pneumonic phthisis. This tissue is peculiar, it has this characteristic that it readily breaks down, and for this reason it has been included in the infective class, together with the lesions of syphilis. Now we know there is a kind of tissue formed in syphilis which varies very much, but still it is a new growth, and we know that under certain drugs this can be changed and destroyed and broken down, leaving nothing behind but destroyed tissue. In tuberculosis we also have a new tissue, but of a more stable character. We know that in small tubercles, after they have grown to a certain size, the centre indicates the beginning of necrosis, and on the outside we have the reticular tissue containing the giant cell. The next stage is that the whole or a part begins to break down, and then it passes into what we call caseation, because we do not know any better name. The chemists, who ought to be able to support us in this, never do so; we have not yet had the composition of caseous matter worked out. What I want to know is whether the caseation in phthisis is the same as that of the breaking down of tuberculosis. If that was shown we would have more data to go on in forming an idea of the disease than at present. In these two forms we have consolidation as one cause of inflammation, and in the other a new growth, both resulting in breaking down and the formation of what we may call caseation. The result of these two diseases is the same, that is to say, formation of cavities in the lungs, while the beginning is totally different.

Before I speak of the formation of tubercles in the lungs I would pass on to acute miliary tuberculosis. Every case of acute miliary tuberculosis that I have been able to get during the last nine years I have examined carefully, and have found always the same results. I have had to place them in two classes, the inflammatory and the tubercular. So we have acute miliary tuberculosis differing so much from either chronic phthisis or the more chronic form of pulmonary disease, still being the same clinically; it is almost impossible at present to discriminate between the two forms of acute miliary tuberculosis. In post-mortem examination of the lungs you cannot tell them apart, yet when we study these small nodules in the lungs we find two kinds, the inflammatory and the tubercular, and in this condition we can study them perfectly. But this is the difficulty we have to contend with in studying the disease and the lesions produced by that disease; we cannot get at the initiation of the disease in the ordinary forms, but we can in acute miliary tuberculosis. Figs. 1 and 2 are photographs of cases of children that died of acute miliary tuberculosis. The disease lasted about the same time, and the children were of the same age, the physical signs and symptoms were alike and were diagnosed as miliary tuberculosis. As far as I have gone, and I am certainly within bounds in saying that I have cut over a thousand sections of these lungs, and stained and examined them, I have never found any section made from either one of these lungs that did not absolutely put itself into one class or the other, inflammatory or tuberculous. So also in the more chronic form the division is absolute between the two, you

FIG. 1.—Typical reticular tubercle (essential type of tuberculosis, Payne). Fibroid tissue, giant cells, necrosed centre. From a case of pulmonary tuberculosis where all the lesions were of this structure, and no tubercle bacilli could be found.

may divide the disease absolutely into two classes, tubercular and inflammatory.

With regard to the tubercle, I may say this: It has been said that the reason why there is this difference of opinion between some observers is that some take one form of tubercle and some another, on which to form their basis as to what a tubercle is. That is utterly wrong; you may make fifty or one hundred or more sections of the lungs in cases of acute miliary tuberculosis of the tubercular kind, and you will never find two that are exactly alike. There is always this sharp difference between the two forms: you have on one side an inflammatory process, with no attempt at structural formation; in the other there is a reticular structure, a new growth. Now, coming to the initiation of these two, and finding out the earliest stages in their growth, and finding that these two begin in the one form inflammatory

FIG. 2.—Caseous tubercle in lung of child in case of acute miliary tuberculosis (so-called). Centre of mass contains a large number of tubercle bacilli.

from the commencement, and in the other reticular, we are justified in deciding that these must be two distinct diseases, this the inflammatory condition, and that the tubercular. (Figs. 3 and 4.) This photograph shows that the commencement of the one is reticular from the beginning; you may see where a small tubercle is commencing, and you see this is formed from a new growth, and that is to be found in the very commencement; while the other is nothing but a collection of inflammatory cells. I have said enough to show that these are two diseases.

Unfortunately, I am not on the fashionable side, and what I have done on this subject is ignored; but I think we have come to a time when we cannot afford to ignore this. This is a more highly magnified specimen, showing the tubercular structure, with large giant cells in it.

Now, in regard to the etiology of these two diseases; it seems to me that there ought to be no difficulty in working out the etiology of the inflammatory form of phthisis; it begins in inflammation and ends in the ordinary way; it simply breaks down. But the tendency is to consider what was formerly called causative as now only predisposition, that leads one only into difficulty, because now we have to face the question of the relationship of the tubercle bacillus to this process. Coming to the earliest stage of the disease as shown in these two photographs, we are told by many observers of the present time, that the tubercle bacillus is the virus of the disease. That phthisis pulmonalis and tuberculosis are one and the same disease; that wherever the tubercle bacillus is found, there is tuberculosis. Therefore, if we want to find the starting point, we must examine the earliest stage of the disease; but when we look at the very commencement of these two forms and look for the tubercle bacillus, what is the result? We cannot find it. I can say that in all the cases I have examined I have never been able to find the tubercle bacillus at the commencement of the process in the human lung. I have carefully picked out from the earliest cases what seemed to be representative ones, and photographed them, so that you can see what is there. This is the commencement of the disease, and the virus of the disease, the thing which starts it, is absent. There is another little difficulty in connection with it; that is, in these two forms in acute miliary tuberculosis you will never find the tubercle bacilli in the sputum. But you will never examine one of the inflammatory type of that disease without finding in the centre of the inflammatory mass a large number of tubercle bacilli. Hamilton has described this peculiar form very well; he calls it "disseminated catarrhal pneumonia;" and he says that not a few cases recover from this. He says that in this form you will find no trace of tubercular formation, no organization, no structure whatever. That agrees exactly with what I call the inflammatory form of acute miliary tuberculosis, and you will see in these specimens that the centre of the inflammatory mass contains a large number of tubercle bacilli. In the tubercular form I have examined many cases where there were no tubercle bacilli at all to be found, not only at the commencement of the disease, but all the way through it. There were none to be found in many hundred sections I had made of that condition; and others have put it on record that they had been unable to find them. Further than that, I have had cases of tuberculosis in the more chronic form, where the disease existed for a long time, under observation, and where there were no bacilli in the sputum; where the post-mortem examination showed large

cavities in the lungs, and sections of the lungs showed large tubercle breaking down and forming cavities, but without one single bacillus in them. So if the tubercle bacillus is the virus of the disease, as far as I can see, it is absent from the commencement of the process in both forms; and even absent throughout the whole course of the disease in some of these forms of tuberculosis.

The next thing which is supposed to show the tubercle bacillus in its position, is the effect when inoculated in animals. It has been stated positively, and on this is founded a great deal of what has been laid down dogmatically, that the lesion produced by inoculating tubercular material is identical with the small tubercle you find in the lungs; that is to say, it is a growth of fibroid tissue containing giant cells. I must disagree entirely with this. I have never seen in the lung of inoculated animals a true tubercle, that is to say, the reticular formation with giant cells, such as you will find in acute miliary tuberculosis of the tubercular form, and which, Payne says, is the essential type of the disease, and what we have always been taught to believe a tubercle. This fibroid tissue with giant cells you will not find in inoculated animals, therefore the disease does not reproduce itself in animals. I have been doing work lately in studying the changes produced by inoculation, where I could prove that the inoculating material was taken from pulmonary phthisis and pulmonary tuberculosis, and although I cannot speak positively, I believe that the result produced by inoculation of caseous products from pulmonary phthisis produces a condition similar to that in the lung of the inoculated animal; that is to say, the new condition is inflammatory, and goes on to breaking down. These are photographs of the lung of a monkey inoculated with pulmonary phthisis; there the change is exactly what you find in the inflammatory form of acute miliary tuberculosis; that is to say, there is no effect on the connective tissues of the lung, there is no attempt at new formation, and if this is the case it is a very important thing, because, on the other hand, inoculation with tubercular material has produced in the lung of a monkey an entirely new condition. This photograph is taken from the spleen, where the monkey was killed eleven days after the inoculation, and in the centre of the Malpighian corpuscle of the spleen is seen a mass of large cells, which are exactly similar to those found in a strumous cervical gland. You know in the strumous cervical gland, which is one of the lymphatic glands, you have a number of masses of adenoid tissue, and between this physiological mass and capsule there is a lymph space forming a sinus there, the effect of the disease on one of these glands alters it entirely by the formation of these large cells, and the lymphatic tissue is entirely changed into masses of large cells with a number of giant cells in them with, after a time, caseation and breaking down in parts, which ends so often in suppuration. Now the effect produced in the monkey's spleen by the inoculation of tubercular matter has been to produce the formation of cells very similar to those found in struma or scrofula, there is certainly a strong resemblance, but as I have said, I have not had sufficient data as yet to speak positively on this. However, I

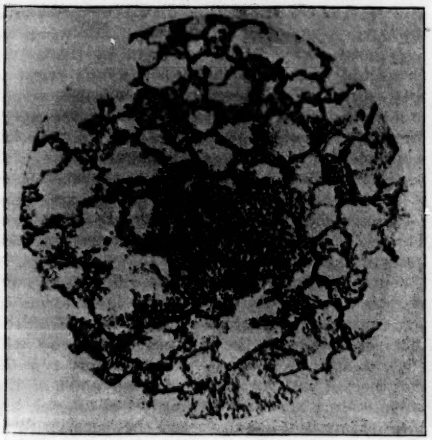

FIG. 3.—Inflammatory tubercle commencing. Lung of child. Case diagnosed as acute miliary tuberculosis. Lung injected with Berlin blue.

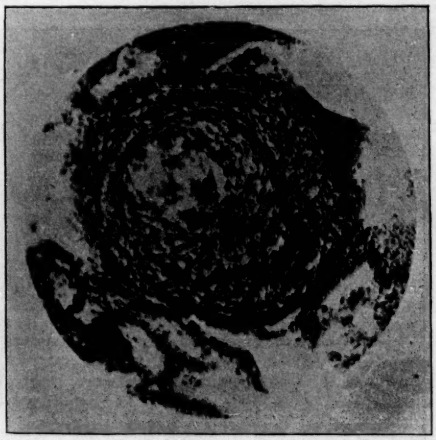

FIG. 4.—Reticular tubercle commencing, from a case of acute miliary tuberculosis.

am endeavoring to carry out the investigation, but I have to take the sputum from cases and inoculate guinea pigs, and trust to providence to give me a post-mortem, and I can't get one post-mortem in twenty, so I am wasting guinea pigs. But I would like to give you the idea, because it seems to me there must be something in this condition, but whether it will be ultimately proved that there is any connection between scrofula and this tubercular inoculation I can't say as yet.

The next point is as to the relation of the tubercle bacillus to the disease, and the proof of inoculation by pure culture of it in the production of tuberculosis. I don't think those who have worked in this have given any statements whatever as to what the products were; we have had the bald statement that histologically the lesion produced by inoculation was identical with that found in the lungs. And this has been stated by men who knew nothing whatever about normal histology. I have met it so often that I feel convinced that such is the case, and I think it is materially hindering our investigations, especially in diseases of the lungs.

One other point I would like to mention is the consolidation produced in the lungs by other diseases. I have spoken so far of catarrhal pneumonia, caseation and the new formation tubercle, and then of the minor class of acute miliary tuberculosis which divides itself into two forms. But there are other conditions, lesions of syphilis and hydatids which sometimes are included in consolidations of the lungs. And another one is croupous pneumonia; we certainly sometimes get a consolidation produced by acute pneumonia remaining in the lung. While it remains in the lung as a solid mass it does not do much harm and gradually dries up, but it seems that some change will take place which produces an irritating action around the edge of the consolidated mass, and this may be either acute or chronic. If chronic, it does what chronic inflammatory action always does throughout the body, causes an increase in the fibrous tissue, and we know what the result is; we have the formation of fibrous bands of tissue in the lung caused by the chronic inflammatory action. But on the other hand, there may be an acute inflammatory process set up which results in the liquefaction of more or less of this consolidation, with the formation of a cavity from that, and here we have another way by which cavities are formed in the lung, and it certainly has no intimate relation with either inflammatory or acute tuberculosis. In regard to the clearing up of these different lesions in the lungs, we may, instead of having acute breaking down there and the formation of a cavity, have the mass dry up, and act as a chronic irritant in the lung, producing the usual chronic inflammation, with the result that it is isolated by fibrous tissue; and we have a chronic cystic tissue in the lung which will either leave a cicatrix there or else a fibrous capsule with a mass of caseous material in the centre.

With regard to those specimens, I cannot say what the condition originally was, the mass in the center is simply caseous, and whether it was a gumma or a tubercle, I cannot say. Whatever was there is broken down and all structure is lost, but still it has produced the same effect of setting up chronic inflammatory action.

I would ask if I were going to kill the tubercles, What would become of them? Do they remain in the lungs as foreign bodies and by their irritation set up these little fibrous cysts which contract on their contents? If so, it would seem to me that the last state of that man would be worse than the first, the remaining lung tissue would be put upon the stretch so that there would be a kind of mechanical emphysema produced which he could hardly sustain.

In regard to the argument in favor of tubercle bacillus being the virus of phthisis; if you make a pure cultivation of bacilli and keep cultivating that from one tube to another, extending over a number of years even,—it will not do to go too far or they will loose their vitality—you are supposed to free them entirely from anything which may have been introduced in the first place from the organ that they were taken from, and you are supposed then to have a pure culture, and that if you inoculate an animal with this it will produce a characteristic lesion. It will produce a change in the lung of the inoculated animal; this is a rather difficult thing to get over, because that, together with the histological consideration of the introduced lesion, are the main points on which the position of the virus of tuberculosis rests. I would ask if it has been proved to demonsfration that the cultivation of tubercle bacilli are absolutely pure? if nothing is carried from this mass on which they are cultivated? Has there been any attempt to prove that? That is a question which is very difficult to answer; but unless it is answered by exact science we may doubt it. We ought to consider all honest opinions, but we do not want to have opinions rammed down our throats as facts until they are proven. If this to be considered as the virus of the disease it must have its basis absolutely sure and certain before we accept it. Now take the example of the jequirity bacillus, which was found in an infusion of the beans sold in India as prayer beans. If you take an infusion of them and inoculate it into the eyes of animals you will produce an intense ophthalmia. It is used by the natives for trachoma, and produces an intense inflammation which lasts two or three days, and then all trace of the disease is gone. It has been found by investigation that after making this infusion and keeping it for two or three days, when it was examined it would be found teeming with bacilli. This bacillus was

cultivated in the same way as tubercle bacillus. Generation after generation was cultivated by a man as careful as Sattler was known to be. Klein made these cultivations and worked it out thoroughly, and I recall his saying to me, "If there is any one case in which it is proved to demonstration that the bacillus is the virus of disease it is this." He made an infusion of the bean in sterilized water, with every precaution against contamination, and inoculated the eyes of eight rabbits, and eight tubes of sterilized peptones. He examined them every day for two or three weeks and not a trace of microörganisms grew in them, but these animals got such an inflammation that they died with their heads swelled to an enormous size. He next took an infusion of jequirity bean teeming with bacilli and heated it to 100° centigrade and kept it so for a minute until the heat had destroyed all formed bacilli. He then took the spores from that and cultivated them until he grew bacilli morphologically identical with the bacillus he had before, but on inoculating the eyes of animals with it it had no effect whatever. Prof. Warden succeeded in isolating the alkaloid, not only from the beans, but the leaves, stems and root of the plant, and it was that which was doing all the mischief; it was shown beyond any doubt, in a case where it would seem to be absolutely proven that the bacillus was the virus of disease, that the bacillus had nothing to do with it.

Now I do not think we ought to take it as being absolutely true that the tubercle bacillus is the virus of the disease from the production of a lesion by an inoculation of so called pure culture, and work on that line. Dr. Shurly and I have always held the view that there is something there beyond the bacillus, and we have never troubled the bacillus except to find when it has gone out in the sputum of the patient treated. We have not worried that bacillus at all, others have been doing that. We have been working on the line that there was some morbid product there which could be combined with some chemical and rendered inert. We commenced work with that idea, and we certainly did succeed by using iodine, and we got to that stage the year before last where we could inoculate a guinea pig with tuberculosis and prevent the development of it; prevent anything developing beyond an abscess at the seat of inoculation, where we would find fluid pus full of bacilli, but with no lesions except fatty change in the liver, but which showed different conditions from ordinary fatty change, which, as you know, is generally around the periphery of the lobule. It was not necessarily confined to one lobule but sometimes running through the middle and changing into this fatty infiltration, so that when you held a section up you could pick out the patch that had undergone this change. We considered that we were not justified in doing this to human beings and we then turned our thoughts to other subjects. Dr. Shurly worked on animals while I worked on pure cultures of tubercle bacillus, until by using a number of things we found a way in which we could render the tubercle bacilli in the cultivation absolutely inert so far as the gross lesion in the guinea pig was concerned, although it was not dead. We considered we had done this by using some chemical which would combine with the morbid product which we thought, and still think, must exist in these cultures, and that we have rendered that innocuous by forming a combination of substances. The one I found most efficacious was chloride of gold and sodium. By using chloride of gold I killed the bacilli right off. I communicated with Dr. Shurly on the results and he was struck with the idea of injecting this substance. We had before been giving insufflations of different drugs, and he thought that by injection we could introduce this fluid in such a way as to be carried to these parts where the morbid product especially existed, and that it would act in the same way. We found we were justified in that by the effect on animals, and from that we went on trying the effect on human beings.

From what I have said I think you will see I am at least justified in coming before such an assembly as this. I can assure you that it was with a great deal of trepidation that I began. I did not know whether I would be allowed to go on to the end. I have been sat down on so unmercifully on the other side that I feel considerably reduced in height in consequence. I hope you will not think I have been too dogmatic, but will pardon me when I say these conclusions are the result of careful work extending over eight or nine years. If you prove that I am wrong I hope you will let me down gently.

THE TREATMENT OF PHTHISIS.

A Lecture delivered at the Post-Graduate Medical School of Chicago, January 23, 1891.

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Mr. President, Ladies and Gentlemen: I will not occupy your time very long as my colleague has gone pretty thoroughly into the explanation of our work in giving you our pathological ideas; I shall speak to you only from a clinical standpoint. It is the predominating opinion of physicians that the bacillus tuberculosis is the specific and only cause of the several forms of disease known as tuberculosis, and from its behavior it is a very hard thing to explain away. But when we consider from a clinical standpoint this bac-

terium, as the cause of the several conditions, known as tuberculosis, phthisis pulmonalis, in its several forms, tuberculous joint disease, scrofulosis, so-called tubercular skin diseases, bone disease, some forms of leprosy, besides other complex affections, it must strike any one who will think of it for a moment, as being impossible!

With regard to the bacillus, of course its specific character we do not question at all; nor its value as a diagnostic sign. The results observed are explained on the theory that it should have a nidus, and upon this nidus develop the disease, or, that it may remain latent in the body, constituting animal parasitism, a condition which was foreshadowed by Dr. Lionel Beal, twenty years ago, or that the bacillus is imbibed, exists for a time in a latent state and is then eaten up by leucocytes or by other microbes — phagocytosis. Now if the bacillus be *the* cause of these complex conditions we must recognize one or the other or all of these theories.

We have in phthisis pulmonalis, as you are well aware, three distinct clinical types of disease. It is almost impossible, so far as I know, to distinguish acute phthisis from miliary tuberculosis, the course is rapid in both, the temperature makes about the same range in each, about the same class of individuals are effected and present about the same symptomatology, which I will not detain you by describing. There is another form which we may properly denominate the *subacute form*, in which the patient has a distinct catarrhal inflammation, existing for a certain length of time, in the mucous membranes of the bronchial tubes, with little or no constitutional disturbance at first, but simply local disturbance, cough and respiratory sensations, while, sooner or later constitutional disturbances come on, and we find, if we make frequent observations by physical examination that the inflammation is extending to the smaller tubes, and involving the air cells; finally, if the process goes on there is continued wasting, more pronounced constitutional disturbance, hyperpyrexia, etc., and breaking down of the tissue, involving bronchii and alveoli of the lung and resulting in that peculiar suppuration called caseation, if we examine such a patient at the end, upon the post-mortem table, we find cavities, caseous matter, indurated places and other evidences of inflammation. There is still another form, called *chronic*, in which there is the same result but the march is much slower, the constitutional disturbance also is put off for a long period, but after awhile, if the patient live long enough, the same condition of breaking down—caseation and induration occurs, and we have about the same morbid anatomy for chronic phthisis pulmonalis. Now it occurred to us in common with many that these several conditions could not possibly be identical with either that condition of bone or peritoneal disease where no bacillus is found, or with general tuberculosis, a general or constitutional disease which exists from the beginning. It occurred to us also that phthisis pulmonalis could not be exactly the same clinically as the disease in the lower animals which is induced by inoculation, and therefore we began to look about for some other cause or causes. In other words, it seemed incomprehensible to me as a clinician, and to Dr. Gibbes as a pathologist, that this *one bacterium* could possibly be alone, the cause of these several complex diseases, because, as you know, reasoning from analogy that each of the specific fevers and like diseases show pretty constant phenomena, and so on, are alike or nearly so, and although there may be a seeming connection between some forms, perhaps, as between the typhoid condition and typhoid fever, yet the causes are not necessarily alike. We therefore, while not contending against the universal existence of the bacillus tuberculosis, think it probable that it is more of a concomitant or resultant in determining certain conditions. This thought, however, is not new; that something else beside the bacillus operates in this disease, for it was suggested by our worthy presiding officer, Dr. N. S. Davis, in 1882, in a paper before the American Medical Association, in which he said that there must be some chemical or biochemical action besides this bacterium to account for such conditions and courses; and many other clinicians have expressed the same doubt. But the thing is to work it out. One more word, concerning the infectious character of the disease; it is argued by clinicians in Europe and a great many in this country, that dry sputum when breathed by an animal or man will produce phthisis pulmonalis! this is true! for we have produced the disease in monkeys by insufflation of sun-dried sputum. In this way we have produced true acute and subacute phthisis pulmonalis, the disease being located *in the lungs*, while by inoculation of monkeys the disease produced has been general, infecting the spleen, liver and other organs, and least or not much at all, the lungs.

It is stated by several bacteriologists and pathologists, even by Koch, I think, that if you dry sputum in *the sun* the virulence of the bacillus is destroyed. We have also found this to be true. Yet we have thus dried the sputum in the sun, and been able to produce the disease in monkeys by insufflation. Does not this seem to indicate that there must be *something* back of the bacterium which is an active agent? Will the absolutely dead and destroyed bacillus produce this effect? We were therefore by this led strongly to think that there is a bio-chemical action in this disease, determining the particular sort of degeneration and suppuration, known as caseation. This then is the main idea in our view and, moreover, we consequently believe that when the di :

the lung tissue there the poison is generated, induced by long continued inflammatory changes having taken place. We also believe that ordinary subacute phthisis pulmonalis and some other forms are perhaps similar in their nature to what was called in the old fashioned parlance, scrofulosis. Now with such views we began using different things locally by inhalation to stop if possible the formation of the caseating process and source of chemical action.

It is unnecessary for me to tell you of the large number of experiments, mostly failures, which we have instituted; we used the several gases disseminated in different ways, hydrogen, oxygen, carbonic acid, hydrofluoric acid, etc., with sulphuretted hydrogen; through accident, we discovered that it is a most virulent and subtle poison, one of our assistants in the laboratory was almost killed by it, besides a couple of monkeys killed outright. So we went on trying the gases, and finally settled upon chlorine, first used in 1828. From a study of its chemical nature as far as known, and from the fact that it is more or less combined with so many of the well known chemical reagents that are in use, it seemed to suggest itself to us as being very desirable for our purpose, but by causing so much irritation when inhaled, inducing so much inflammation by contact with animal tissues, it became a question whether we could introduce it or not; we tried a great many methods. First, mixed with air in small proportion and so on, and after killing a few monkeys and guinea pigs, we found after awhile that these animals could inhale the gas in the proportion of 1-40,000 of air; but this dilution we discovered was not sufficient to destroy the virility of the sputum, so we increased the quantity of the mixture until obtaining one that would destroy the activity of sputum, so that an animal inoculated with it was not affected. We found that with a mixture of about 1-4000, (by exposure for a few moments) we would destroy the virulence of sputum, so that we could inoculate animals with such sputum without producing any disease. Observing, as we thought, that hydrochloric acid and hypochlorous acid was evolved very soon after the liberation of chlorine gas in the air, probably accounted for its irrespirability and was the cause of the irritation, because the monkeys died from common inflammation of the whole respiratory lining. This afforded very good study, however, because there was general broncho-pneumonia produced, therefore we felt as though we must go on very carefully and not induce such a condition in the human being.

After trying many different things to neutralize the by-products we succeeded in accomplishing the purpose by using a solution of chloride of sodium. We began with chlorine water spray, but found by experiments with guinea pigs in a gas cage that sprays did not penetrate into the lungs readily, that is without very long exposure although gas was evolved, all of which seemed to be unsatisfactory. It is possible, however, that the local effect of anything may be continued for a long time on the respiratory tract, beyond the place of contact, but we could get no chemical reactions in animals' lungs by using sprays, unless we used some substance subsequently giving off the gas. We obtained some effect from the spray of peroxide of hydrogen, which, after being diffused in the air of the gas cage, seemed to split up; also with chlorine water, which after awhile left the chlorine gas in the air, but we could not thus destroy the sputum. We therefore continued with our experiments in the use of chlorine gas, and found that with chloride of sodium spray well diffused, animals could inhale chlorine for a considerable length of time; and after trying it thoroughly on animals we began experiments on human beings with satisfactory results. Our idea was to *stop* the *formation* of the virus, whatever it might be, whether a ptomaine, a leucomaine or a toxalbumin, etc., and thus to stop the progress of the disease at these points, believing that phthisis pulmonalis is *essentially* a *local* disease. But we found after awhile that this plan would not *stop* the process altogether although it would check it! In the monkey, it would only feebly act in checking the course of the inoculated disease. But if we could manage to set up phthisis pulmonalis in monkeys by exposure, or from the insufflation of the dried sputum, or in menageries, we could prolong the course of the disease very much indeed by the gas. Constitutional disturbances would come on after awhile, however.

Turning attention toward meeting constitutional effects, the iodides of a great many chemicals were used, also chlorides and sulphides. We at first used them by the mouth, which brought serious events. On account of the changes which chemicals undergo in the stomach and intestinal canal we thought it better to use them by hypodermic injection if possible. There are reports in the literature of medicine from the last century, that iodine was valuable, but an irritant, and would produce abscesses, which it did in our experience. We thoroughly tried it, but had abscesses, which caused the death of the animals, but we found by accident that the abscesses were due to chemical impurities. After having the iodine resublimated by Dr. Clark we had no difficulty from abscesses, unless we used enormously large doses on animals. The same thing we found to be true of the chloride of gold and sodium and permanganate of potassium. The idea of using iodine came to us first from the fact of its resolvent action upon the lymphatic glands and tissues generally in all of those diseases which so closely resemble phthisis pulmonalis clinically. We have used also the arsenite of potassium, but found that the poisonous effect was so great that it could not be

continued for any considerable length of time. We observed that after using iodine a certain length of time, a certain condition, iodism, took place which prohibited its further use; animals and man would have diarrhœa, vomiting, and would refuse food, etc. It is astonishing how much a little animal like a guinea pig can stand of these chemicals. These symptoms coming on soon made it necessary to have something else to hold the effect as it were. Taking our experience in the action of chloride of gold and sodium on dead tissues in general, we hit upon that, after failure with bichloride of mercury and other salts, and used it locally and by injection. Although it is said by surgeons that if you use hypodermic injections aseptically no abscess will follow, yet you will find that bichloride of mercury used hypodermically may produce abscess. This is not the case with chloride of gold and sodium if chemically pure, which, as you know, has been used for years as an alterative. We began by small doses and gradually increased them. We inoculated a number of guinea pigs, first with these chemicals, one series with iodine and one series with gold, and after doing that for a week or so until we noted physiological effects, we then inoculated them with well known virulent sputum and found to our astonishment that the pigs did not take the disease. We repeated this with another series, with the same effect, until we have now a number of very healthy pigs that have been inoculated with iodine and gold and with undoubted virulent sputum as proven by control animals. Just which is the better, of course has not been determined yet, for there are a great many things to learn. Unfortunately, the further we go into such a subject the more we appreciate that we know but little. We have been trying since, in continuance of our work, to trace out the poison, whatever it is. If we are right in this idea that it is a toxalbumin, a ptomaine, or a leucomaine, we want to isolate it. We want to get it out so that we can show it and test it and have it exposed in its true form, just as we can get crystals of strychnine, and we do not feel that the work is done unless the poison can be thus shown. We therefore feel that we are in the first part of the work only until we can show what part of these extracts lie at the bottom of the causation.

We are now engaged in making extracts—I can only hint at it, can only say that some of the results we have had from these extracts have been astonishing to ourselves, and if we can continue and perfect these investigations the probability is that in a year, or perhaps less, we may be able to isolate the particular poison or poisons which produce this disease, or which are generated in the body and keep up the disease. These extracts will produce it in the guinea pig; but whether they will do it *every time* we do not know; we have not had time to test it thoroughly.

I suppose some of you may want to know what success we have had with human beings. We have tried to be very careful about making promises, although we have been published in the papers very much more than we anticipated or desired and there have been a great many exaggerated statements made. But of course you would like to know what success we have had thus far. I cannot give you the details of the cases to-night, we expect to publish some case histories in a short time. Of the cases of so-called general tuberculosis we have treated altogether about four well-marked cases; two of which died without showing any effect of treatment, one of them is certainly very much better, and the other case is simply held in abeyance, so far as we can observe. We have treated a number of cases of phthisis pulmonalis, including what Dr. Gibbes spoke of as the tuberculous form and the pneumonic form. We have had in all about twenty-two cases under observation for about two to three months with about six so-called cures, taking all the several cases together, but there has not been time enough to tell whether these people have been thoroughly cured or not. In one case there was very decided laryngeal ulceration, which was seen by several medical gentlemen, in that case the cicatrix was so complete that it could be seen with the laryngoscope, just before she went home about Christmas practically well; her physician continues the hypodermic injection about once a week. One case I have in mind was a man in whom the upper left lung was breaking down, as was evidenced by moist and gurgling râles, so that there could be no mistake about it. He was examined by two or three others besides myself. This man has been under treatment since September and he has now an injection about once a week or ten days, but has practically gone from under the treatment. Another case, that of a young girl, who has gone home, seems to be lasting, the last advice is that she has remained well with scarcely any cough, merely a little hacking in the morning. In her case the diagnosis had also been made out by physicians before she came to us. Another case is that of a teacher who has resumed her school duties since January, she still coughs a little in the morning but has no elevation of temperature now and is gaining flesh and strength. Another case was that of a man whose disease was of a more chronic form; he left the hospital in a very much better state; he eats well and has no elevation of temperature whatever, no nocturnal diaphoresis, or anything of that kind. Of course this does not prove anything until more time elapses.

We have now about thirty-five cases under treatment, some of which are doing very well! There are two or three of them termed "caseous

pneumonia," that are not doing very well. The one case of tuberculosis which I mentioned is a case which several gentlemen outside the staff saw in the hospital; we thought of giving up the treatment, because there was no chance, for it is undoubtedly a case of general tuberculosis. But after one or two relapses she has been getting better, and when I left home she had been sitting up considerably for a number of days past; although she has elevation of temperature she has no nocturnal diaphoresis, her appetite has returned and she expectorates only about two drams of mucous in twenty-four hours, with no pus. We have one case of a young boy in the hospital, which is very promising and very interesting inasmuch as the probability is that he had pneumonia followed by abscesses of the lungs first, and then caseation of the lung. Another case was of pneumonic abscess followed after a time by the presence of tubercle bacilli in the sputum; on account of the deep location of the abscess, I did not open into the lung. I was afraid to cut through such a large amount of lung tissue to reach it. I therefore put him under this treatment, and he is slowly recovering from the abscess of the lung.

There are some other chemicals we have been using lately that may prove more valuable than iodine and chloride of gold. Of course the experimentation is far from complete, but one of them especially bids fair to be more promising than gold. The general plan of treatment seems to us to hinge on the use of chlorine gas to stop the caseation as far as possible, and cut off the origin of the poison, which thence is circulating through the system. In the early stage of disease, before much caseation, we do not think it is necessary to use the chlorine gas too freely, but instead the iodine, for its well known effect upon chronic inflammation.

I would say in regard to the manipulation of chlorine gas that it is a very simple thing but it needs some care. The chloride of sodium spray should be put into the room first, and the air thoroughly laden with it before the chlorine gas is evolved. At the hospital we use about 1-20,000 up to 1-4000. The first dose should be quite small for cases of laryngeal phthisis. In cases where there is ulceration chlorine gas in a room seems much the better way. If, however, there is only tumefaction the mixture of sol. of chloride of sodium and chlorine water chemically pure, is quite sufficient from an inhaler. The mixture of the two was suggested to us by Dr. Ingals, of your city. Before that, we used two tubes one containing chlorine water and the other the chloride of sodium solution. We had tried mixing them before but had always obtained a precipitate, and we therefore thought the two were incompatible, but we found out afterwards that it was because of exposure to light and long standing, and if the mixture be used immediately we could get good results. So in cases of laryngeal phthisis of all forms, we should recommend that an inhaler be used.

We are certainly very much obliged to the profession of Chicago for the attention that has been shown us. When we started out, we had no idea that we were going to interest the profession of Chicago to such an extent, and as I said, we are very grateful for the attention we have received, and feel that we do not deserve it. We have not accomplished anything as yet, we have only started! We have nothing definite to promise and we only hope that all of you may aid us in every way possible by your criticisms and by your crucial tests, for that is the only way in which this problem can be solved.

ORIGINAL ARTICLES.

ADDITIONAL COMMUNICATIONS CONCERNING A REMEDY FOR TUBERCULOSIS.[1]

BY PROFESSOR R. KOCH,
OF BERLIN.

The following translation of Mr. Doctor McDill represents perfectly the original treatise.

PROF. EHRLICH for PROF. KOCH.

Berlin, Jan. 17, 1891.

Since the publication, two months ago, (see *Deutsche Med. Wochenschr.*, No. 46 a) of my experiments with a new method of cure for tuberculosis, many physicians have obtained the remedy and have thereby been enabled to become acquanted with its properties by personal experiences. As far as I review the publications which have appeared, together with the communications to me by letter on this subject, my statements have, upon the whole, found full corroboration.

It may be considered as generally accepted that the remedy has a specific action upon tuberculous tissue and that it consequently can be utilized as a very subtle and reliable reagent for the bringing to light of the hidden, and the diagnosing of the doubtful tuberculosis processes. Also regarding the curative effect of the remedy, it is reported by the majority of observers that, despite the comparatively short duration of the treatment, a more or less extensive improvement has occurred in many cases. In not a few cases that have been reported to me a positive cure is claimed. Only here and there has been made the statement that the remedy might not only prove dangerous in cases too far advanced, as will be readily ad-

[1] Translated from the Deutsche Medicinishe Wochenschrift of January 15, 1891, by John R. McDill, M.D., of Milwaukee, Wis., now in Berlin.

mitted, but that it directly favors the tuberculous process and is therefore *per se* harmful. I myself have for the past month and a half had an opportunity of gaining further experience concerning the curative effect and diagnostic uses of the remedy, by the observation, in the City Hospital in Moabit, of about 150 cases of the most varied forms of tuberculosis, and can only state that all that I have seen of late agrees with my former observation, and that I have no alteration to make in my previous report.[2]

As long as it was a question of testing the correctness of my statements, it was not necessary to know what the remedy contained or whence it originated. On the contrary, the trial was likely to prove the more unbiased the less was known of the remedy itself. But now that the proof has, as seems to me, been offered in sufficient quantity and has resulted in establishing the value of the remedy, the next problem to be worked out will be, to study the remedy beyond the extent to which it has hitherto been applied, and if possible, to employ the principles which have led to its discovery, in other diseases. This problem requires, self-evidently, a full knowledge of the remedy, and I, therefore, consider that the time has arrived to make the necessary statements in this direction and which will appear in the following. Before I touch upon the remedy itself, I think it advisable to the better understanding of its mode of action, to shortly indicate the road by which I arrived at its discovery.

When a healthy guinea pig is inoculated with a pure culture of tubercle bacilli the inoculation wound, as a rule, closes and appears to heal during the first few days, but in the course of ten or fourteen days there forms a hard nodule which soon breaks open and becomes an ulcerating surface which persists until the death of the animal. But the case is very different when a guinea pig is inoculated which already has tuberculous disease. For this purpose are best suited animals which four to six weeks beforehand were successfully inoculated. In such an animal the small wound of inoculation closes at the beginning, no nodule forms there, however, but on the next or second day a peculiar change takes place at the injection spot. This place grows hard and becomes of a darker color, and then this change is confined not merely to the vaccination site, but spreads about its neighboorhood to a diameter of 0.5 to 1 cm. During the following days it appears more and more evident that the skin thus changed is necrotic; it is finally thrown off and there remains a superficial ulceration which usually heals rapidly and permanently without the neighboring lymph glands becoming infected.

The inoculated tubercle bacilli thus act quite differently upon the skin of a healthy than upon that of a tuberculous guinea pig. Now this striking effect does not by any means belong exclusively to the living tubercle bacilli, for it is brought about in much the same manner by the dead ones, and it is unessential whether they are destroyed, as in my first attempts, by low temperature of long duration, by boiling heat or by certain chemicals.

After this peculiar fact was found, I have followed it out in all directions, and there then further resulted that (abgetödet) pure cultures in which the tubercle bacilli have been killed, after having been triturated and suspended in water, could be injected in large quantities under the skin of healthy guinea pigs without anything ensuing beyond a local suppuration.[3] Tuberculous guinea pigs on the other hand are killed by the injection of even very small quantities of such suspended cultures, and this occurs, according to the dose applied, in from six to forty-eight hours. A dose which is just insufficient to kill the animal can cause an extensive necrosis of the skin, about the place of injection. Now, if the suspension (Aufschuemmung) be still further diluted until it is barely visibly turbid, then the animals remain alive, and if the injections are continued at intervals of one or two days there soon occurs a marked improvement in their condition; the ulcerating inoculation wound grows smaller and finally cicatrizes, this, without such treatment, never is the case; the swollen lymph glands diminish in size; the general nutrition improves and if the disease process is not too far advanced and the animal does not die of adynamia, it comes to a stop.

Hereby was given the foundation for a curative treatment of tuberculosis. To the practical application, however, of such suspensions (Aufschuemmungen) of "killed off" (abgetödet) pure cultures of tubercle bacilli, the objection offered itself that at the sites of injections the tubercle bacilli are not absorbed, nor do they in any other way disappear, but that they remain lying unchanged for a long time and form greater or smaller suppuration foci.

That which, in this proceeding, has the healing influence on the tuberculous process had consequently to be a soluble substance, which, by the fluids of the body surrounding the tubercle bacilli, is in some manner extracted and then quite rapidly brought into the circulation, while that which has the suppurative effect apparently remains behind in the bacilli, or goes into solution, but very slowly.

The main point, therefore, was to institute out-

[2] Regarding the permanency of the cure, I should like to mention here that of the patients which I had for the time being pronounced cured, two have returned to the Moabit Hospital for further observation, and that for the last three months no bacilli have been found in their sputa; the physical signs also have gradually disappeared in these cases.

[3] Injections of this nature are among the simplest and surest means of producing suppurations which are free from living bacteria.

side of the body the process which took place within, and if possible to extract and isolate from the tubercle bacilli the healing substance. This problem has required much trouble and time, but I finally succeeded in separating the efficacious material from the bacilli, with the help of a 40 per cent. to 50 per cent. of glycerine solution. It is with fluids thus procured that I have made the further experiments on animals and finally on human beings; these fluids have been given to other physicians for the repetition of the experiments.

The remedy with which the new treatment for tuberculosis is carried on is therefore a glycerine extract of the pure cultures of the tubercle bacilli.

Out of the tubercle bacilli there, of course, passes into this simple extract not the efficacious substance alone, but also all the other substances which are soluble in a 50 per cent. glycerine solution, and, therefore, there are found in it a certain quantity of mineral salts, coloring matters and other unknown extractive matters. Some of these ingredients can be rather easily separated. The efficacious substance is insoluble in and can be precipitated by absolute alcohol, to be sure not pure, because together with it are precipitated other extractive materials which are also insoluble in the alcohol. The coloring substance it is true can be removed, so that it is possible to procure from the extract a colorless dry substance containing the active principle in a more concentrated form than the original glycerine solution. For practical application, this purification of the glycerine extract offers, however, no advantage, because the substances thus removed are indifferent to the human organism and therefore the purifying process would only render the remedy unnecessarily more expensive.

The constitution of the efficacious material is so far a mere matter of conjecture. It appears to me to be a derivative of albuminous bodies and clearly related to them, and does not belong to the group of so-called tox-albumins, because it bears high temperatures and passes easily and rapidly through the membrane of the dialyzer. The quantity of the substance contained in the extract is apparently very small; I estimate it at fractions of 1 per cent. We have then, if my supposition is correct, a substance the effect of which on tuberculously diseased organisms far surpasses what is known to us of the most powerful drugs.

As to the manner in which we have to imagine the specific action of the remedy on tuberculous tissue, different hypotheses can, of course, be entertained. Without wishing to assert that my opinion affords the best explanation, I believe the process to be the following: The tubercle bacilli produce by their growth in living tissues, the same as in artificial cultures, certain substances which influence the living elements, the cells, in their neighborhood in varied but always harmful manner. Among them there is one substance, which in certain concentration, kills living protoplasm and so changes it that it passes into the state termed by Weigert coagulation necrosis. In the tissue grown necrotic the bacillus then finds such unfavorable conditions of nutrition that it is unable to keep on growing and under certain circumstances even dies off. In this manner I explain to myself the striking coincidence that in organs recently affected with tuberculous disease,—for instance, in a guinea pig's spleen or liver, which is full of disseminated gray nodules—we find numerous bacilli, while they are scarce or altogether absent when the enormously enlarged spleen consists almost entirely of white substance in a state of coagulation necrosis, as is often found after the death of guinea pigs from tuberculosis. Therefore the individual bacillus is unable to cause necrosis to any great distance, for as soon as the necrosis has reached a certain extent, the growth of the bacillus decreases and thereby also the production of the necrotizing substance; hence there results a kind of mutual compensation which causes the vegetation of individual bacilli to remain so remarkably limited, *e. g.*, in lupus and scrofulous glands, etc. In such cases the necrosis ordinarily concerns only a part of the cell, which then in its further growth takes the peculiar form of the giant cell; I thus, from this point of view, accept the explanation first given by Weigert of the formation of giant cells.

If the quantity of necrotizing substance was now artificially increased around the bacillus, the necrosis would extend to a greater distance and thereby the conditions of nutrition for the bacillus would become much less favorable than usually is the case. On the one hand, then, the tissue grown necrotic to a greater or less extent would perish, become detached and wherever possible carry away with it and extrude the enclosed bacilli; on the other hand the bacilli would be so greatly disturbed in their vegetation that they would be much more liable to die off than under ordinary circumstances.

The working of the remedy to me seems to consist in the production of just such changes. It contains a certain quantity of the necrotizing substance, a sufficiently large dose of which damages certain tissue elements also in the healthy subject—possibly the white blood corpuscles or cells closely related to them, and thereby produces fever and the entire complex symptoms. In the tuberculous subject, however, a very much smaller quantity suffices to cause in certain places, namely, where tubercle bacilli vegetate and have already impregnated their surroundings with the same necrotizing substance, necrosis of cells, more or less extensive, and in connection therewith consecutive symptoms in the whole organism.

In this way we can, at least for the present, explain the specific influence which the remedy, in quite definite doses, exercises on tuberculous tissue; next the possibility of raising these doses so remarkably fast; and finally the curative effect which undeniably exists in those cases which are but moderately favorable.

A STUDY OF STERILITY, ITS CAUSES AND TREATMENT.

Being an Essay which received the First Prize of the Alumni Association of the College of Physicians and Surgeons, Baltimore.

BY THOS. W. KAY, M.D.,
OF SCRANTON, PA.

(*Concluded from page 229.*)

TREATMENT.

1. *Nonproduction.* — *Male.*—(*a.*) Should the testes of the male be congenitally absent from the scrotum there is a possibility of their being present in the abdominal cavity, but in either case if aspermia or azoospermia exists, treatment is useless. Should spermatozoa exist in small quantities the same remedies can be used that are employed in early decay. These can also be used in cases of retarded development.

(*b.*) Where inflammatory or other troubles have produced destruction of the glandular structure, restoration of the destroyed tissue is impossible; but under iodides and mercurials with counter-irritants and electricity, the inflammatory deposits may be absorbed and the arrested secretion from the remaining healthy portions reëstablished.

(*c.*) When sterility in the male is accompanied by atrophy or softening coincident with varicocele, hernia, or other benign tumors, the prognosis is good, if the individual will submit to surgical treatment in time. The tumors should be extirpated and the testes injured as little as possible. In all cases of hernia where a truss is not suitable the radical cure should be undertaken. Of all the methods used for varicocele the best is ligating the veins above and below, by the open method, and dividing them between. Hydrocele should be first treated by withdrawing the fluid and injecting irritating substances, after which, if a cure is not effected, more radical measures can be adopted. For malignant tumors, thorough extirpation has to be resorted to and the prognosis is very unfavorable for future posterity.

(*d.*) If sterility is subsequent to some constitutional disease, attention must be directed to building up the general health. A sea voyage, a trip to the mountains, sea bathing, or a stay at some chalybeate springs will be found beneficial in anæmic or debilitated persons.

In obese and plethoric subjects the saline springs will be preferable, while a course of laxatives, careful dieting and regular exercise will exert a beneficial influence. Should the cause be traced to masturbation or excessive venery, bromides must be used, while the will power is appealed to and the patient removed as far as possible from all exciting causes.

Debility of the sexual organs can be best overcome by cold douches and electricity, while the phosphides, nux vomica, and cantharides are employed internally.

Female.—(*a.*) Congenital absence of the ovaries can not, of course, be remedied, and non-development is almost as hopeless, though there is reason to believe that the use of electricity and massage, long continued, may stimulate the development of the glands. Where dislocation of the ovaries depends on uterine displacements it should be treated by attending to the false uterine position. If the ovary alone is dislocated it can frequently be treated by a pessary, unless in the inguinal canal, when it should be replaced and supported by a proper fitting truss.

(*b.*) Little can be done when atrophy of the ovaries follows wasting diseases, except to use tonics and such remedies as are used in atrophied testes, hoping thereby to cause development of such follicles as have escaped the inflammatory process. Much, however, can be done to prevent inflammatory troubles by preventing early marriages. Women, as a rule, unless well developed, should not marry under twenty years of age, and in many cases it is best to wait until the twenty-second year. In pelvic inflammations, where exudation has taken place, it is well to withdraw, by aspiration, what fluid can be obtained and thus abort the trouble. Dr. Hardon, of Atlanta, Ga., speaks highly of this treatment, and I have seen the happiest results follow its use. Where due to syphilitic infection the inflammatory deposits must be treated by iodides and mercurials while tonics are given to build up the general health. Where atrophy of the ovaries is due to contraction of inflammatory deposits, which dislocate or compress the ovaries, much benefit can be obtained from the long-continued use of hot water vaginal injections, massage and galvanism. Vaginal and rectal suppositories, containing iodine, iodoform, or one of the iodides, can also be used with advantage. With the local treatment we should also use tonics and such remedies as are best calculated to build up the constitution.

(*c.*) Where malignant growths affect the ovaries, early and complete removal must be resorted to, but if the growth is benign, the operator should, if possible, leave as much of the ovary as appears to be healthy, in the interest of future generations.

(*d.*) The sterility attending anæmia, chlorosis and other constitutional affections must be treated on general principles. Tonics, baths, chalybeate waters, voyages, change of scenery and surroundings, can all be used, while good and nutritious

food must be furnished and regular out-door exercise enjoined. Where the persons are addicted to the use of drugs they will have to be gradually weaned off and some substitute used till the physical and moral nature is sufficiently strong to enable them to abstain.

In cases of obesity, rich, saccharine, fatty and starchy foods must be forbidden, regular and daily out-door exercise required, and sea bathing and saline waters advised. In the way of medication aloes, iron, nux vomica, and phosphorus can be employed advantageously. Desprès relates cases where the application of electricity produced sexual excitement with a discharge of vaginal and uterine secretions, and it is more than likely that the same agent will be found of use where non-production of ova is due to a sluggish condition of the female genitalia. Little can be done by the physician in inherited sterility except to pay attention to the general functions of the body, but he should, wherever he can act as the family adviser, impress on his patients the evils of inter-marriage, and do all that he can to prevent such unions.

2. *Nonunion. Male.*—(*a.*) Any absence or occlusion of the ducts situated between the testes and the urethra is naturally out of reach of the surgeon, unless the occlusion is due to pressure from a tumor of the cord or elsewhere, in which case it can be readily removed. The causes of non-union in the male are fortunately situated, as a rule, in the urethra, and these can generally be remedied. In urethral fistula, epispadias, and hypospadias, the defect can be remedied by a plastic operation. Phymosis, stenosed meatus and dilated meatus can also be easily remedied by simple operations. It is in strictures of the urethra, however, that the surgeon has to employ his ingenuity, and wide differences of opinion exist as to the best methods to employ. Soft stricture usually yields readily to dilatation, but the fibrous stricture should be treated by urethrotomy and electrolysis. Otis, of New York, prefers internal urethrotomy; Stein, of New York, thinks gradual dilatation best; Keyes, of New York, practices external urethrotomy for strictures from injuries; Lavaux, of Paris, claims a new method which he calls "divulsion progressive," where a cure can be effected in eight days; and every town of any size now has its ardent advocate of electrolysis. Should the breadth of a fibrous stricture be narrow it may be advantageously excised by external urethrotomy and the two portions of the urethra carefully drawn together and united by sutures.

(*b.*) Though the gonorrhœal poison is one of the most potent factors in producing sterility, yet it probably affects the vitality of the spermatozoa very little as they pass through the urethra. It is well, though, in every case to check the discharge as soon as possible, and for this I have found injections of creolin or of sublimate solutions among the best remedies.

(*c.*) The use of artificial means by the male to prevent conception can not be too severely condemned, for they are injurious both morally and physically. Abstinence from coitus, and coitus only about midway between the two monthly periods are the only legitimate means to be employed, where there is a desire to avoid conception.

(*d.*) In individuals of excitable dispositions, where orgasm comes on before that of the female, bromides can be given, but in time each individual will learn the other's disposition and be able to hasten or delay orgasm till the proper moment. If this is not accomplished in a reasonable length of time, it may be well to separate the parties for a longer or shorter period, at the end of which time the difference in disposition will probably not be as great. Where neuroses of the genital tract exist there will generally be found some tenderness, or it may be a stricture of the urethra. In either case attention must be directed to the seat of the trouble. If orgasm seems to be retarded by exhaustion of the nerve centres nothing will be found better than phosphide of zinc and nux vomica. Where the trouble seems to be due to a dilatation of the dorsal vein of the penis, subcutaneous injections of ergotin by the side of the vein will be found useful. Jamin, of Paris, reported a case where imperfect erection was cured by the surgical treatment of an accompanying varicocele. Vidal de Cassis reported a similar case and I have succeeded in curing another case by the same treatment.

Female.—(*a.*) All abnormal conditions of the ovaries and of the ova which prevent the escape of the ova or the subsequent entrance of the spermatozoa are irremediable. So also is absence or imperfect development of the tubes and absence of the uterus. In cases of double uterus operative interference is not called for, nor is it in double vagina unless the septum prevents coitus. Where there is partial or complete absence of the vagina, with a normal uterus present, an artificial vagina can be made by carefully dissecting between the bladder and rectum so as to avoid injury to these organs. In unmarried females tents will have to be used occasionally to keep it from contracting, but after marriage the male organ will usually render the use of the tent unnecessary.

The discovery of an imperforate hymen is usually made at puberty, and is easily remedied by incising, but all antiseptic precautions must be used to prevent septic absorption. Should coitus be prevented by a rigid hymen or an abnormal condition of the vulva, a slight and harmless surgical operation will set all to rights.

Atresia of the cervical canal is best operated on by a trocar, and dilators used afterwards. If

hæmatometra is present the same care must be used as recommended in operating on hæmatocolpas, for septic poisoning is exceedingly easy after the operation. Stenosis of the cervical canal can be treated by incision, or by dilating with instruments for that purpose, but the best and most permanent results are obtained from the occasional use of tents.

For absence or abnormal shortness of the intravaginal portion of the cervix there is no remedy. Where uniform elongation or hypertrophy of the cervix exists amputation must be resorted to, but in the operation care should be used to unite the mucous membrane of the cervical canal to that surrounding the cervix so as to prevent subsequent stenosis. In sterility due to stenosis or flexions the "Outerbridge dilator" will be found of service, if introduced several days before the menses make their appearance. Where hypertrophy of the cervix is confined to only one side, amputation can be practiced or the convex portion of the cervix can be incised so as to remove the obstruction. Conical and nozzle-shaped cervices must also be amputated. In cases of lacerated cervix or lacerated perineum the duty of the surgeon is to repair the injured part as soon as possible.

In all displacements of the uterus an effort should be made to restore the normal position.

Prolapse can be treated by massage, hot douches, astringent tampons, pessaries, supporters, or some of the surgical procedures to be mentioned hereafter. Where flexions exist tents should be used to soften the uterine tissue and straighten out its axis, after which intra-uterine stems, tampons or pessaries should be used to keep it in its normal position. Versions can often be treated by tampons and pessaries, and Bouilly, of Paris, recently reported eighty cases of retro-deviations treated successfully by pessaries; of this number three had subsequently become pregnant. Should, however, the displacements be of long standing it will be well to resort to surgical interference. Alexander has devised a means of shortening the round ligaments of the uterus, which has been modified somewhat by Polk and Wylie. This operation gives the best results for simple retro-deviations, but it has also been used in prolapse. In the latter case it is best to accompany it by some operation for narrowing the vagina or increasing the perineal support. In a case of prolapse Freund, of Strassbourg, opened Douglas' cul-de-sac and attached the fundus uteri to the peritoneum of the sacrum. This he calls retro-fixation. Ventro-fixation consists in opening the abdominal cavity and attaching the uterus to the abdominal parietes. It is steadily growing in favor and has the hearty support of such men as Lucas-Championnière, Polaillon, and Terrier, of Paris; Sänger, of Germany; Kelly, of America, and many others. It gives the best results in cases of simple retroversion, but has been used in nearly all displacements. Picqué, following the operation Olshausen, has, where the uterus was bound down, opened the abdomen, divided the bands and attached the uterine ligaments to the abdominal parietes. The result was good, but it might be well to adopt the method of Erich and forcibly separate the adhesions by a large steel sound introduced into the uterine cavity. It seems also that the safety of these operations might be increased by incising only as far as the peritoneum and suturing without opening the abdominal cavity. Contracted pelvis is a rare cause of impediment to the entrance of the semen, and when it is can not be remedied.

Acquired stenosis or atresia of the genital tract must be treated in the same way as the congenital form, and usually gives better results.

The evil results of inflammatory deposits about the uterus and its appendages have been dwelt on in speaking of the causes of sterility. When the acute stage has passed such remedies should be used as will favor the absorption of the deposits. Copious injections of hot water, in both vagina and rectum, are found very serviceable in producing these results, but they must be long continued to produce the best results. Tampons of glycerine with or without iodine, or iodide of potash also exert a favorable influence. Rectal and vaginal suppositories of iodine, iodide of potash, or iodoform have yielded excellent results in my hands, when combined with tonics and hot-water injections.

In some cases local blood-letting will be found serviceable. With all these remedies absolute abstinence from sexual excitement must be enjoined.

Electricity has been introduced by Dr. Georges Apostoli in the treatment of these affections, and its long continued use in chronic and subacute cases has been followed by the most excellent results.

Engelmann and many others, both here and abroad, testify to its efficacy.

Major Thure Brandt, of Stockholm, was the first to use massage in uterine affections, after which it was practiced by Dr. Sahlin of the Stockholm medical school. In 1870 Dr. Nostrom, of Paris, became interested in the subject, and after carefully studying it introduced it into Paris in 1872, since which time it has been diffused over the whole civilized world.

It has been used for uterine displacements, metritis and ovaritis, but its most satisfactory results have been made in peri-uterine exudates of long standing. Semianikoff, of St. Petersburgh, reports favorably of it, as do also Profs. Jackson and Martin, of Chicago, Drs. Smith and Athill, of England, and many others. Boldt, of New York, calls attention to the fact that great care must be

used where accumulations of fluid exist in the tubes. To get satisfactory results massage must be carried out by the gynecologist himself, and persevered in for a long time. Only chronic and subacute cases should be subjected to treatment, and where the finger of the operator is not long enough to reach the deposits he may resort to the obturator of Wissenberg, the end of which may be covered with rubber if much tenderness is experienced.

When hydro-, hæmato-, or pyo-salpinx exist, they may be overcome by putting the patient under an anæsthetic, dilating the uterus, breaking up what adhesions exist, and thoroughly curetting the endometrium, especially around the openings of the tubes. Intra-uterine galvanism is also useful, and cases have been reported where the obstruction in the tube has been overcome in this way. In the early stages of salpingitis it is well to follow the treatment of Dr. Mangan, of Marseilles—use rest, sedatives, and cold to the abdomen, while hot vaginal injections are employed, and when the case becomes more chronic apply medicated glycerine tampons to the cervix and iodoform pencils to the interior of the uterus. With these remedies it is well to combine tonics and baths.

Should vaginismus be the cause of sterility the remedies employed must be adapted to the cause of the vaginismus. Solutions of lead, silver and zinc may be employed for the inflammatory process, while cocaine, belladonna and morphia will relieve the irritation and pain. Coitus under chloroform has been advised but does not relieve the trouble. Gradual dilatation with specula has been used, but probably the best remedy is to excise the hymen close to its insertion. When vaginismus is due to uterine fibroids galvanism will usually effect a cure if sufficiently long continued.

In all cases where non-union of the ova and spermatozoa is due to hypertrophy or tumors of either the external or internal organs of generation, the surgeon should remove the cause if possible. The fact of sterile women becoming pregnant after the removal of uterine or ovarian tumors is well known to all.

Should the acid secretions of the vagina be injurious to the spermatozoa, boracic acid will be found to be an excellent remedy. Potter, of Buffalo, employs vaginal tamponnement with this remedy in cases of sterility, and claims good results from its use. Kisch recommends a warm aqueous saccharine solution rendered alkaline by caustic potash, and Chassier uses a solution of white of egg and phosphate of soda, in which the spermatozoa are said to live for a long time.

Where the impediment seems to be due to a thickened cervical secretion, it will be well to introduce a tampon, saturated with glycerine, several hours before coitus, and remove it before the act is accomplished.

Vaginal catarrh can be best remedied by injections of solutions of corrosive sublimate, creolin and boracic acid, though the astringent metallic salts can be used with advantage, and where much pain exists sedatives and demulcents should be employed. Parvin, of Philadelphia, and Jules Chéron, of Paris, speak in the highest terms of the use of creolin, employed either in solution or as an ointment.

The diagnosis of acute endometritis is usually easy, but where chronic endometritis is suspected it is best to follow the advice of Schultze, of Jena. This consists in inserting a glycerine tampon against the external os at night, which, on removal in the morning, will have a small quantity of pus on it, if endometritis is present. The cure of simple catarrhal endometritis may be effected by glycerine tampons, and hot douches as recommended by Hermann, of London; or a solution of morphine may be employed with success, according to Sivieccki. Where the cases are more obstinate solutions of nitrate of silver, sulphate of copper, tr. of iodine, carbolic acid or creasote can be used with advantage, but better results are obtained from introducing crayons made from tragacanth dissolved in glycerine and water, which contain iodoform, corrosive sublimate, creolin, resorcin or salol. Where the endometritis has become chronic, Dumontpallier uses Canquoin's paste, and Rheinstaedter, of Cologne, Dorff, of Belgium, and Bröse, of Berlin, speak in the highest terms of a 50 per cent. solution of chloride of zinc applied to the endometrium, which can be followed in a few weeks by a 20 per cent. solution. With the above remedies tonics must be used, and all agents that are calculated to build up the general system. The treatment of salpingitis has been spoken of before, and the line of treatment mapped out.

Where fistulæ exist, surgical procedures must be resorted to, and it is well, where it is possible, to follow Tait's operation, as it probably gives better results than any other.

(*c.*) Nothing need be said about the artificial means used by women to prevent conception, except to condemn them as injurious and unnatural.

(*d.*) It is rare that the physician is called in to treat cases of retarded orgasm or the contrary condition, and when he is, little can be done except to appeal to the moral power while the functions of the body are put in order. In some cases a separation of the man and wife for a lengthy period of time will be found to be very beneficial to both parties, and will overcome the trouble.

3. Non-implantation.—Non-implantation after impregnation is due to some trouble in the tubes or the uterus. The treatment of diseased tubes has been spoken of while discussing the union of the ova and the spermatozoa, and it now remains to consider briefly the affections of the uterus.

The prognosis in the undeveloped or atrophied

uterus is poor, and yet, with the long continued use of tents, stimulating crayons, hot douches, electricty, massage, emmenagogues, and strict attention to the general health, much good can be obtained. The treatment of peri- and parauterine deposits has been spoken of in connection with uterine displacements, and endometritis was treated of when considering agencies injurious to the life of the spermatozoa. It remains to say, however, that in exceedingly obstinate cases of chronic endometritis, with or without fungous or other growths of the endometrium, the application of the blunt curette will be found most useful. After its application a solution of the subsulphate or the perchloride of iron should be applied to the endometrium, as recommended by Kay, of Scranton, or the iodized phenol can be substituted with advantage, according to Roony, of Quincy.

In curetting the uterus it is well to remember that paralysis of the muscular walls sometimes takes place, and the instrument seems to pass into blank space. Cases of this kind have been reported by Doléris and Geijl. For implantation of the ovum it is necessary to remove all intra-uterine growths, but where they are subserous or situated in the muscular tissue, the application of electricity should be persevered in, as its results are excellent and little danger attends its application. Ergot has been used subcutaneously, but little good has been obtained from its use. If sterility is due to compression of the uterus from intra-abdominal growths, laparotomy must be resorted to to remove the trouble. If cancer of the cervix is taken in time, its removal will justify a favorable prognosis, but where the disease has attacked the body of the organ nothing can be done in the interest of child-bearing.

In cases of membranous dysmenorrhœa the cavity of the uterus can be dilated and various medicinal substances applied to its interior. The curette has also been used with success, and Winckel has had good results from the application of leeches to the cervix uteri. But in many cases all treatment fails to relieve the trouble, and all that can be done is to see to the general health while sedatives and opiates are employed as required. In menorrhagia and metrorrhagia the cause must be looked for and the case treated accordingly.

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MEDICAL PROGRESS.

Therapeutics and Pharmacology.

A NEW MODE OF EXHIBITING SULPHONAL.—DR. DAVID D. STEWART, of Philadelphia (*Medical News*), says that unquestionably the great disadvantage of sulphonal over other recently-introduced hypnotics is its insolubility and consequent slowness of action. As ordinarily administered, dry upon the tongue, or suspended in mucilage, etc., the result, in most cases, is unsatisfactory. Even after a decided dose hours often elapse before sleep is obtained, and, usually, a condition of very annoying semi-somnolence is maintained throughout the greater part of the subsequent day. Unpleasant effects of this sort are so frequent that many physicians are deterred from prescribing what has proved in my hands the most satisfactory of the newer hypnotics. These effects obtain because of the very slow diffusion of the drug when taken in a state of simple suspension, the whole amount not entering the circulation for many hours after its ingestion.

I desire to call attention to a more satisfactory mode of administering sulphonal; a method that occurred to me when having occasion to take the drug a year or more ago, and one which has subsequently afforded me results in practice not in the least obtainable by its use in the common way. My method is as follows: I direct that just before retiring the sulphonal powder be well stirred in a glass two-thirds full of boiling water (about six fluid ounces) until entirely dissolved. The water must be boiling, and to insure that it is at the boiling-point when brought in contact with the sulphonal, it had better be heated on the spot. It can be boiled in a tin-cup over the gas, or over a spirit-lamp. After the sulphonal has entered into solution, which will occur in a moment or two if it be well-stirred, cold water may be very cautiously added to reduce the liquid to a drinkable temperature, which, if the patient is accustomed to taking hot fluids, *will be one not sufficient to cause the slightest precipitation of the drug;* or the hot solution of sulphonal may be permitted to cool to this temperature, the cooling process being facilitated by continued stirring. To insure success the sulphonal must be taken *wholly dissolved*, and the hotter the solution is drunk the better. It is surprising to one accustomed to prescribing this hypnotic in suspension several hours before bed-time, to allow for what has been called the period of therapeutic incubation, to note the prompt and satisfactory result of this simple manœuvre. The hot solution dilates the gastric vessels and stimulates them to rapid absorption, so that diffusion takes place from the stomach probably before slight or any precipitation of the drug occurs; entirely unlike the result that follows when the sulphonal

is ingested in a state of simple suspension. In the latter case gastric absorption can scarcely occur, and hours are perhaps consumed before the whole amount taken enters the blood. The period of therapeutic incubation is practically done away with. Sleep results in most cases in a very few moments, and seems to be more profound and dreamless than that from a larger dose taken in the ordinary way, and the annoying condition of drowsiness usually present on the subsequent day is scarcely felt if the dose be properly graduated. The hot solution, which has a slightly unpleasant taste from the dissolved sulphonal, may be rendered decidedly palatable by the addition of a tablespoonful of some such *liqueur* as *crême de menthe* ("green mint"), which, apart from its efficiency in this direction, will probably tend to promote still more rapid absorption of the drug. To obtain an immediate and altogether satisfactory result from this method it is desirable that the stomach be empty or at least comparatively free from food, so that precipitation be not favored and absorption delayed by the entanglement of particles of sulphonal and undigested food, but as it is unnecessary to take the dose until the retiring hour there will usually be no difficulty from this.

KOCH'S TREATMENT: EXPERIMENTS ON CATTLE.—PROFESSOR BOLLINGER, of Munich, gives (*Münich med. Wochenschr.*, January 13, 1891), a summary of some experiments with Koch's fluid made in the Veterinary Institute at Dorpat by W. Gutmann on three tuberculous cows. The disease was diagnosed partly by physical examination, partly by the presence of tubercle bacilli in the bronchial mucus and in the milk, and partly by changes in the lymphatic glands. Relatively large doses were employed, 0.1 g. being injected into one animal, 0.2 g. into a second, and 0.3 g. into a third. The injections were made behind the shoulder-blade. The temperature was taken every hour on the day of the injection and the following day and night. In all three animals the temperature began to rise about eleven hours after the injection. The reaction corresponded to the amount of the remedy exhibited, the maximum attained in the first animal being 40° C., in the second 40.8°, and in the third 41.7°. The duration of the fever in the three cases was four, nine, and ten hours respectively. In the first cow another injection of 0.3 g. was given four days after the first; reaction came on in from eleven to twelve hours and lasted four hours. In all three animals during the febrile period there was some difficulty of breathing and loss of appetite, but the next day they took their food well and rumination was active as usual. No rise of temperature followed the injection of 0.3 g. in two healthy bulls which were used as "control" subjects. Twenty-four hours after the injection they were slaughtered and all the organs were found to be perfectly normal. Gutmann, therefore, concludes that Koch's remedy is a most valuable aid to diagnosis in the case of cattle suspected of tubercle. In this view Professor Bollinger agrees with him. —*British Medical Journal.*

Surgery.

COMPOUND COMMINUTED COMPLICATED FRACTURE OF THE DISTAL EXTREMITY OF FEMUR. RECOVERY WITHOUT AMPUTATION.—The *Montreal Medical Journal*, February, has a brief report of a case of the above named accident reported by DR. JAMES BELL. The patient, male, aged 30, was brought into the hospital with so severe a fracture of the lower third of the thigh, and with so much laceration of the soft parts that amputation was, upon consultation, recommended. To this the patient would not consent, so that conservative surgery was perforce resorted to. Under ether the wound was thoroughly cleansed, several small, loose fragments of bone were removed, which, with a portion of the bone excised, equalled about four inches of the femur-shaft. The articular end had been split and the condyles driven asunder by the violence of the accident; these latter were brought together and pinned with Macewen's pins for the excision of the knee-joint. The patient rallied well after the operation and no troublesome symptoms arose. The temperature at no time exceeded 99.5° F. The patient was discharged at the end of three months and twenty days with a good union and a considerable amount of mobility at the knee-joint, which will, without doubt, be increased by passive exercise, the patient being at an age when this can be insisted upon rigorously and to some purpose. The shortening amounted to three and a half inches. A better result than this is seldom seen either in private or hospital practice, and may serve as a landmark for surgeons who need encouragement in their pursuit of conservative methods.

PAINLESS CIRCUMCISION.— G. W. OVERALL (*Medical Record*) says: For the past fifteen years I have performed circumcision quite frequently for the relief of various nervous disturbances. Since the introduction of cocaine I have used it almost exclusively in men, and frequently in children, by injecting it beneath the integument in the prepuce (having previously placed a rubber band around the penis half an inch or more back of the corona to limit its effect to the prepuce).

The pain attending the introduction of the needle into the sensitive skin has been a serious objection in men, and almost as bad in children, as the operation itself. Then I have had various postponements, and often complete abandonment

of it, because I could not promise "that it would not hurt." Now I can promise an operation where a child would not even know it until it was performed.

I do not want my patient to see the operation, and in the case of a child I conceal the instruments. I then place the patient upon his back and lay a small pillow on his chest so that he cannot see over it. I then adjust the rubber band, take a freshly prepared 30 per cent. solution of cocaine and inject with a small blunt-pointed syringe a few drops into the preputial orifice, at the same time I hold the end of the prepuce with my left hand, to prevent the escape of the fluid. I then press upon the fluid with my right hand to enable it to come in contact with the entire mucous membrane. I hold it for five or six minutes, when the mucous membrane is completely anæsthetized. I then introduce carefully my hypodermic needle through the preputial orifice and penetrate the mucous membrane and inject a few drops of cocaine. I then move it to another part and repeat the injection. It necessarily requires caution to prevent puncturing the integument, which would cause pain. I operated upon a child six years old, very small, nervous and excitable, while he was discussing with his mother the kind of toys he would get for Christmas. I also operated upon a boy 14 years old that came from an adjacent town (using silk-gut ligature), he did not feel the slightest prick of the needle. He returned home the same evening and recovered without a bad symptom. It is always better to use a ligature that does not require to be removed.

Bacteriology.

THE EFFECT OF KOCH'S REMEDY UPON THE INTERNAL ORGANS.—PROF. VIRCHOW (*Berliner Klinische Wochenschrift*, January 12, 1891), reports the results of autopsies made at the Pathological Institute. Twenty-one of these cases occurred before the close of last year, and six or seven were added to the list previous to his report (January 7). Of the first twenty-one cases sixteen were in the strict sense of the term phthisical, with the process localized in the lungs, the remaining five were made up of one case of bone and joint tuberculosis, a peculiar case of carcinoma of the pancreas with an old lung complication, one of empyema, one of old rectal fistula, and lastly a case of arachnitis tuberculosa. The visible effects of Koch's remedy show it to be an irritant, producing redness and swelling, which is also present in the internal organs, and frequently in the severest forms. In the case of the tubercular arachnitis, a child from the wards of Prof. Henoch in whom, sixteen hours before death, an injection had been made, showed a greater degree of hyperæmia and injection of the brain and its membranes, than Virchow had ever before observed. He also carefully examined and could not determine any alteration in the tubercular process. This acute hyperæmia and swelling was frequently observed in other organs. The walls of old cavities were often red, and infiltrated with blood.

A case is described in which death took place from anæmia after severe hæmoptysis. In this case the process was not confined to a simple hyperæmia and swelling, but it was possible to determine an active cell proliferation. This cell proliferation was especially well marked upon the wall of the cavity as well as in the affected bronchial and mesenteric glands. The swelling sometimes takes on a dangerous character, especially in the throat, where it may cause phlegmonous tonsillitis or pharyngitis, or erysipelatous œdema of the glottis. It is difficult to say whether this inflammation is caused by the injection or not. The changes in the lungs are divided into two classes—the first presenting the common picture of caseous pneumonia. Prof. Virchow did not remember to have seen in years so extraordinary a case of caseous hepatization as was presented in one of the specimens shown. The lung appeared like a blood sausage, with here and there pieces of pork distributed through it. In this case six injections were employed, the last one four weeks before death, the treatment having been discontinued when the pneumonic process appeared. Pneumonia in phthisis commonly presents itself in three forms, the fibrinous, caseous and catarrhal. The fibrinous was not observed in any of the cases. Eleven of the cases closely resembled the catarrhal, and yet there were marked differences. The exudate was cloudy, gelatinous, resembling the caseous but without its character; frequent vacuoles were seen, with a tendency to coalesce, a similar appearance to that presented in gangrenous pneumonia.

DEATH FROM KOCH'S LYMPH.—PROF. GRASSET, of the Hôpital Saint Eloi (*La Semaine Médicale*, January 21), reports the death of a young man following the lymph injection. The patient presented the signs of a circumscribed pleuropulmonary tuberculosis situated in the upper portion of the right lung, that was not accompanied by fever. The injection produced a rapid change for the worse, with the formation of large cavities, and the rapid extension of the tubercular process through the same lung and to its fellow. A careful description of the autopsy is given with an account of some pulmonary lesions that they attribute to the lymph, among others the "injection pneumonia of Virchow."

The writers conclude that the lymph converted an apyretic circumscribed tuberculosis into a case of "galloping phthisis," with severe hæmorrhage and high temperature. The patient died ten days after the injection.

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SATURDAY, FEBRUARY 21, 1891.

THE REPORT ON MEDICAL EDUCATION.

The seventh Report on Medical Education of the Illinois State Board of Health, just received, is the most complete work of its kind that has ever been issued by the Board. It includes not only all the medical colleges in the United States and Canada, as heretofore, but a summary of the requirements in foreign countries as to preliminary education, a list of the teaching institutions and their requirements in all foreign countries, and the regulations in these countries as regards the license to practice.

It is evident from the report that there is an upward movement in higher medical education, and it gives to the Chicago Medical College the credit for having taken the first step in this country for the three years' graded course—in 1868. It was not until 1881, however, that there was a decided movement in this matter. In this year the Illinois State Board of Health first classified the medical colleges of the United States and Canada in a Report on Medical Education. One year before this the Board had adopted its schedule of minimum requirements, to go into effect after the session of 1882–83. Since 1882 the movement for higher medical education has acquired more and more momentum, as will be seen from some figures taken from the Report. In 1882 there were but 45 colleges requiring certain educational qualifications for matriculation; in 1886 there were 114; in 1889, 117; in 1890, 124; and now there are 129. In 1882 the number of colleges requiring attendance on three or more courses of lectures before graduation was 22; 41 in 1886; 47 in 1889; 64 in 1890; and 85 at present. Since 1880 the length of the lecture terms has been increased from an average of 23.5 to 26.3 weeks. In 1882–83 there were eight colleges that had lecture terms of but sixteen weeks. In 1882–83 only 42 colleges had terms of six months or more; in 1883–84 the number was 49; in 1889–90 it was 76; now it is 111.

One of the very suggestive features of the Report is a table showing the results of the examinations by the medical examining boards of Alabama, Minnesota, New Jersey, North Carolina, South Carolina and Virginia. Of the institutions represented before these boards 77 are in the United States, 5 in Canada, and 12 are foreign. Our 77 colleges were represented by 1,183 candidates (graduates), of whom 898 passed and and 285 failed to pass. It is noteworthy that there is a great difference in the percentage of rejections before the different boards. Excluding the results before the New Jersey Board, which examined only 11 candidates, the Alabama Board rejected 7.84 per cent., the Minnesota Board 29.81, the North Carolina Board 20.64, and the South Carolina and Virginia Boards 28.82 and 29.51 per cent. respectively. The variation is not so great, however, as in the case of the nine Prussian examination commissions in 1890, the extreme limits of rejections before these commissions being 9.3 and 40.09 per cent. It is suggested in the Report that the several State boards hold a meeting for consultation, and that they adopt some plan by which examination papers may be exchanged, since it is important that the work of these boards should be as uniform as possible.

Two tables show the marks of the candidates rejected by the Virginia Board in September, 1890, and of the candidates that passed the New Jersey Board in October, 1890. It is a somewhat remarkable fact that a non-graduate received the highest mark of any candidate rejected by the Virginia Board. The names of the colleges from which these candidates were graduated are given. It is suggested that each board of examiners prepare a table of this kind at each examination, since the publication of such statistics will undoubtedly have a powerful effect on colleges. The lowest marks received by the rejected candidates were in chemistry, anatomy and

surgery. Before the New Jersey Board the lowest average (by successful candidates) was in surgery and surgical anatomy.

The Report calls attention to the value and increasing number of courses preparatory to the study of medicine, now offered by some of the largest universities in the country. There is undoubtedly a tendency towards beginning the education for the work of life earlier, and it is now more than ever recognized that the foundation for a proper study of medicine should be laid before the student actually begins to study medicine.

The Report is earnestly commended to the careful attention of all the colleges, as well as to all interested in higher medical education. It shows that there is no longer any doubt that four years of medical study and three courses of lectures is to be the rule in this country until a still higher standard is adopted. Some of the colleges have arrayed themselves against the higher standard. It is evident they must accept it or join the long roll of extinct medical colleges.

THE SUPPRESSION OF SYPHILIS.

It will be of no small interest to our philanthropists—and there are not a few in the ranks of our profession, be it said to our credit—to learn that the outcome of measures put forth of late years on the continent of Europe, with regard to the regulation of prostitution, have proved unavailing, from both a moral and sanitary point of view.

Morally, the effort to regulate—and thereby, in a measure, stop—the vice of prostitution, has only resulted in a more than compensating clandestine recourse, which appears more penetrating in its effects, and evil in its consequences, than maintained previously. And through this result, and in the aversion of the syphilitics in the regulated houses to being hospitaled for long time as such, it is believed that a wider dissemination has been given to this poison.

So thoroughly convinced upon this point is a recent writer to the *Westminster Review* that his one conclusion is this:

> As a means of lessening the amount of the diseases associated with the practice of prostitution, the system of legal recognition, toleration, and regulation, always has proved and always must prove a complete failure.

This only tends the more to illustrate that law cannot answer for enlightenment; that progress in the direction of moral and physical elevation of the race must ever depend upon a proper and widely-extended teaching. If ignorance of danger does not immediately lead to syphilitic infection in all or many cases, then that carelessness and animalism born where ignorance and sin prevail is accountable for all the other factor fails to cover.

Such training as will in the best manner open to the mind of "budding" youth the principles of sexual hygiene will no doubt prove—when it becomes sufficiently recognized—the most successful means of combating, not only this, but kindred influences of a widely-evil nature.

PROPHYLAXIS.

As a means of markedly invigorating the entire organism, and rendering thereby the system less prone to the influence of all external disease-producing agencies, an English physician reports, in a recent number of the *British Medical Journal*, the benefits of a daily morning cold bath. The bath used is *cold*. Often the ice has to be broken before the bath can be taken. Then the skin is toweled thoroughly. This physician says he never has a "cold;" never wears an overcoat—whatever the weather may be; has had no illness for many years; and would as soon think of stopping his meals, as to drop off the customary cold "tubbing."

In this connection might be mentioned the still more radical system of FATHER KNEIPP, the villiage priest of Voerishofen, Bavaria. It is said that he is well-regarded by the medical profession, and that many doctors go to him to learn his method of cure and care. The features of this so-called method are not at all new of themselves, and it is more the combination of requirements, together with the rigidness of procedure, which commands attention.

FATHER KNEIPP is simply a health reformer, and as such he declares strongly against all woolen garments next the skin. The underclothing he recommends is made of strong, coarse linen. Next of his requirements is the cold bath, which is to be taken quickly, and without subsequent drying of the skin. The linen garments are to be put on at once, while the moisture of the bath is still upon the body.

Then comes the practice of walking or running barefooted in wet grass in cold weather, or in freshly-fallen snow. The village of Voerishofen lies in a valley where green meadows abound, and is therefore particularly adapted to this form of exercise. After running in the wet in this fashion the patient puts on coarse linen socks, and boots, and walks briskly for a spell. Then as to internal attention tea and coffee are absolutely prohibited, and animal food is discouraged. Bread, fruit, vegetables and milk are the substances permitted. "There are few better meals," says this man, "than plenty of fresh fruit and a piece of bread."

The patients are advised to drink before eating, never while eating, and after eating only when it seems necessary; and then moderately. Hard beds; cool, well-ventilated rooms; and the *use* of good things—without their *abuse*—quite completes this hygienic plan.

UNNA'S PASTES AND PASTE-STICKS.

LASCAR has contributed an article to the *Pharmaceutical Record*, January 5, giving the results of a vast number of trials with all the ointment bases, new and old, especially with the gelatine ointments and pastes of UNNA. Many of the latter have as their base amylum and gum arabic, and UNNA has found it serviceable to bring such pastes to a consistency so that they can be formed into sticks, and he is in the habit of incorporating in them a variety of medicaments, as iodoform 40 per cent., salicylic acid 10 to 40 per cent., resorcin the same, corrosive sublimate 5 to 10 per cent., oxide of sulpho-carbolate of zinc 20 per cent., or pyrogallic acid 40 per cent. These paste sticks require to be moistened when applied to the skin. They are not to be confounded with the salve-sticks which resemble the well-known cosmetic sticks of French origination. Their consistency, however, is about the same as that of the ordinary cosmetic stick, and their base is spermaceti or wax with olive oil. The parafine oils are not suitable for these purposes.

One word in regard to the gelatine unguents of UNNA may be added here from the observations of LASCAR. Being an entire novelty to him, he encountered no little difficulty in obtaining a superior article. He used the Cox gelatine and macerated it with cold water until it swelled, then heated it in the water-bath and added 10 per cent. of glycerine, then added a concentrated warm solution of Russian isinglass, in the proportion of 1 to 4 of the gelatine, the product being a glycero-gelatine that dried more quickly than any other combination experimented with by him, and that left a firmer coating on the skin when applied directly thereon.

DOCTORS AND ADVERTISING.

The *London Daily News*, in an article with the above caption, puts in a special plea "regarding the severity of the unwritten law of professional etiquette." It claims that medical men "are constantly under suspicion of advertising themselves when they are really doing nothing of the sort." "If the committee of the local literary and scientific institute," says our secular brother, "will print the name of 'Dr. Abernethy Astley Cooper Jones' in big type, with a whole row of initials after it, is it fair to make him responsible for that?" Aye, there's the rub! Were the capitals, as we suppose them to have been, the measure of self-conceit, or only the expansion of the manager's admiration? Or did they act as a bait for the public, pretty much as "The biggest show on earth?" We do these things much better in America. We are careful never to submerge self in profession, college, hospital or association. Happily, too, we are more ingenious in our methods and have a much wider choice, such as the carefully written interview, with its patronizing tone and convenient avenues of escape; the society item, with one's diamond-bedecked wife and stunning equipage; the summer movement to secure a much-needed rest; the fag-end of "Among the distinguished persons present we noticed;" the summons from a distance or an enormous fee; a gratuitous diagnosis, broadcast among the laity; and last of all, for even the humblest brother we have provided the anecdote and the lugubrious office of pall-bearer.

A medical correspondent of *The Lancet*, quotes the *News*, confesses to finding "intense pleasure and relaxation in addressing an intelligent audience," but he had to endure "the darts of slander." Is it possible that "the intelligent audience" can have no redress in a damage suit? But oh, men of many talents! these are the struggles of genius, and we need not multiply exam-

ples. Perhaps your wares are no better than your customers. Wise men of the East, know ye not that there is a way to sail under false colors, notwithstanding your incorruptible newspapers, your immaculate municipalities, and your poor but honest street-sweepers? Many know the route, and many have returned safely to a haven of comfortable competence.

A friend of this luminous man of "intelligent audience" proclivities, "can make ten guineas by one evening address, and earn as much in an hour and a half as his detractors can do in a week, but owing to the intolerable priggish attitude of his fellow practitioners, he is obliged even to cease his gratuitous efforts on behalf of the churches, chapels and local charities." We hope, persecuted man that he evidently is, that he has never bored his hearers or made them a means of improvement in oratory. Demosthenes may have been (still, we do not know), more considerate in betaking himself to the sea-shore. However, despite the temptation, we shall spare him our Western story of "poor pay and poor preach."

Briefly and seriously, in regard to the whole matter, let us state that these "reading notices" which we have in mind are costly, sometimes profitable and not infrequently disastrous. To the adventurer and charlatan there may be a necessity for elbowing, but society in the one case has furnished him with the crowd, and the profession in the other has begotten for him the confidence. To our weak brother we can only say that medicine as a vocation, being personal in its limitations, cannot be over-lucrative. Rather say in its proper column what you desire without fear of the blue pencil, and take your place among the other honest tradesmen.

LARGE BILIARY CALCULUS DISCHARGED THROUGH AN UMBILICAL FISTULA.

In the *New York Medical Journal*, January 31, DR. COLEGROVE reports the passage of an extraordinarily large biliary calculus by the way of an umbilical fistula. A lady, aged 83, had an abscess around the umbilicus, attended with a great amount of disturbance, pain, loss of sleep and appetite; it communicated externally by means of a fistula, through which pus was discharged for a week or more. One night she was suddenly taken with an increase of the pain, so intense that she became collapsed; with this there was the extrusion, through the umbilical fistula, of a calculus measuring four inches in circumference. Two months later the fistula had healed and there was a complete absence of local tenderness, and the patient was restored to her former measure of health.

EDITORIAL NOTES.

THE OFFICE OF CORONER.—The *London Law Journal*, "referring to the approaching abolition of the office of coroner throughout the United States," says: "The coroner's inquest in an average American State seems to have been simply a costly and tedious way of doing nothing; the verdict of the jury was not only not conclusive, it was not even evidence, and the subsequent trial proceeded without any reference to it whatsoever." All this is written in the past tense, as of an accomplished fact, and without the theory of the preliminaries of an indictment. Meanwhile the Massachusetts experiment of medical examiners works admirably, and has stimulated reformatory discussions in our well populated communities.

It is pertinent to allude in this connection to the usage of most European nations, which is to commit "the sudden death inquiries" to the public prosecutors, with the option of medical aid. Here, as everywhere in the civilized world, the certificate, barring suspicions of crime or the fixation of responsibility, is held to be final. The ruling of the law appears to be that an opinion, however erroneous, cannot be a misdemeanor even in the mildest sense of the term. Were this otherwise, but few articles on medical education would need to be written, since none would be rash or Quixotic enough to court an unnecessary doom.

THE WORLD'S CONGRESS AUXILIARY OF THE WORLD'S COLUMBIAN EXPOSITION.—Extensive preparations for International Congresses during the Exposition are being made by the World's Congress Auxiliary of the World's Columbian Exposition. The officers of the Auxiliary are Charles C. Bonney, President; Thos. B. Bryan, Vice-President; Lyman J. Gage, Treasurer; Benjamin Butterworth, Secretary. These officers have been working three months on the subject in hand, and have presented to the directory a report showing that they had enlisted the sympathy

and coöperatian of distinguished men in politics, science, religion, education, moral and social reforms, literature, law, and the artistic and learned professions. The work outlined is on the broadest scale, and congresses of the representatives of all the branches indicated have been provided for. It is the intention to bring to Chicago not merely a few distinguished people, but a large number of cultivated and intelligent persons from all parts of the world. Much difficulty, the report says, was experienced in the work of forming a list of standing committees and assigning and specifying their work. The standing committee on Medical and Surgical Congresses, including Dentistry, Pharmacy, Public Health, and Private Sanitation, with a special committee for each organization of this class—Dr. N. S. Davis, Dr. H. A. Johnson, Dr. H. M. Lyman, Dr. J. S. Mitchell, Dr. R. Ludlam, Dr. R. N. Foster, Prof. Oscar Oldberg, and Benjamin Butterworth, Secretary.

ARMY MEDICAL EXAMINATION. — Surgeon-General Sutherland, of the U. S. A., has issued the following notice:

An Army Medical Board will be in session in New York City during April, 1891, for the examination of candidates for appointment in the Medical Corps of the United States Army, to fill existing vacancies.

Persons desiring to present themselves for examination by the Board will make application to the Secretary of War, before April 1, 1891, for the necessary invitation, stating the date and place of birth, the place and State of permanent residence, the fact of American citizenship, the name of the medical college from whence they were graduated, and a record of service in hospital, if any, from the authorities thereof. The application should be accompanied by certificates based on personal knowledge, from at least two physicians of repute, as to professional standing, character, and moral habits. The candidate must be between 21 and 28 years of age, and a graduate from a regular medical college, as evidence of which, his diploma must be submitted to the Board.

Further information regarding the examinations may be obtained by addressing the Surgeon-General U. S. Army, Washington, D. C.

NICARAUGUA CANAL HOSPITAL AT GREYTOWN.—A hospital has been organized at Greytown, having 125 beds. It has its regular staff of surgeons, apothecary, trained nurses and hospital steward. Its roof and sides are constructed of corrugated iron with a view of minimizing the dangers by fire and febrile infection. Every suitable modern hospital appliance has been requisitioned and supplied. Subsidiary hospital stations have been established up in the interior at two points where large bodies of canal workmen are employed. These have an assistant surgeon and druggist at each.

REMOVAL.—We regret to learn that by reason of the ill health of his family Dr. James A. Lydston, late Chief of Eye and Ear Department of the Pension Bureau, Washington, D. C., has been obliged to relinquish the Professorship of Chemistry in the Chicago College of Physicians and Surgeons. He will resume the practice of his specialty in Denver, Colo.

LONGEVITY IN THE SOCIETY OF FRIENDS, ENGLAND.—A recent report of the vital statistics of this Society in the United Kingdom is commented upon in *The Lancet*, January 3. The membership of this body is stated at 15,500, and the mortality during the past three years is given at an average of 256 deaths per annum, or about 16.5 per 1,000. A remarkable feature of this mortality is the high age of the deceased: of the 769 persons dying in three years, 480 or 61 per cent. were 60 years old or upwards. Another noteworthy point is the small mortality among young children. In the year 1889, there were only fifteen deaths of children under 5 years of age. This statement may be taken to show the abnormally low rate of mortality, but in the absence of statistics showing the number of persons living in the various age periods, it may also be taken to show—that which is probably the true state of the case—an abnormally small number of young children in the Society. The *Lancet* very properly points out the desirability of making such future reports more instructive by a statistical division by periods of age of the 15,500 members, so many of whom are given to lives of peace, sobriety and good works.

THE MEDICAL SOCIETY OF THE MISSOURI VALLEY.—The next meeting of this Society will convene at Omaha, Neb., March 17, at 7:30 P.M. It has an enrollment of about 300 members. The Secretary, Dr. F. S. Thomas, of Council Bluffs, Ia., will be pleased to communicate with those who propose to present papers at that meeting.

PROFESSOR PFUHL, Professor Koch's son-in-law, is to have charge of the new institute for experimental medicine in St. Petersburg.

TOPICS OF THE WEEK.

THE PROGRESS OF SURGERY IN 1890.

In the last year there has possibly been a slight lull in the cumulation of surgical discoveries, and yet we are unable to look back upon the progress of the year that has just expired without feeling that there is ample ground for congratulations to the medical profession upon the strides that have been made.

The great event of the year was the Medical Congress at Berlin, where the large attendance of men most prominent in our art and science, from all parts of the civilized world, brought together a wealth of facts and views that are now crystalizing into a valuable mass of information.

There has been noticed in the year gone by that reaction which was bound to follow the enthusiastic prevalence of intra-abdominal operations during the last few years. The matchless skill of the leaders in these procedures has taught us a technique that can scarcely be improved upon; while the number of operations performed has become less, through more perfect discrimination in the selection of cases absolutely requiring such measures. In the matter of operations for the relief of disorders due to inflammatory conditions of the vermiform appendix, the main points developed have been chiefly in the line of improved diagnosis, and in a general belief in the advisability of early interference.

The study of intestinal anastomosis first evolved by Senn has been taken up by a host of men, though, strange to say, its practical applications are still limited too much to our own country. The monograph written by Professor Senn upon the subject of the Diagnosis and Operative Treatment of Gunshot Wounds of the Stomach and Intestines, bids fair to become one of the classics of surgery for years to come. No better illustration of the progress made in this domain of surgery can be given than the brilliant results obtained by Professor Bernays in a series of seven cases of gunshot wounds of the abdomen, which formerly would have been regarded as hopeless and left to die without surgical interference.

The methods of skin grafting and transplantation devised by Thiersch have proven their value in many hands during the past year, and now are fully admitted among the established surgical procedures of common occurrence.

Mr. Horsley's experiments in the transplantation of the thyroid gland of animals to the human subject have been followed by a practical application of the procedure, and bid fair to add one more to the many splendid results attained by this indefatigable experimenter.

In the surgery of the joints a more conservative tendency is becoming manifest; and in Germany, especially, the injection of iodoform emulsions in tuberculous joints has been employed with much success as a substitute for more radical procedures.

Among the improvements brought about in the technique of special operative procedures, the bloodless method of amputation at the hip joint, devised by Professor Wyeth, of New York, and performed with success by himself and others, takes high rank.

Operations upon the nerve-centres and the nerves themselves have greatly multiplied, and operations of un-heard-of magnitude have this year been reported, by which the brain and cord have become a far wider operative field than had ever been previously thought possible.

The discovery with which Koch startled the medical world a few months since has not been sufficiently developed to permit of positive deductions regarding its value in the various forms of surgical tuberculosis, although from present indications it will supersede all other methods for the treatment of lupus.

Such are a few of the results of the past year, and, in this marvellous age of progress, we are left to wonder at what we may have to chronicle for another year, though we are conscious that the last one has marked a decided era of improvement in our methods and knowledge.—*International Journal of Surgery.*

ANOMALIES OF BRAIN AND SKULL IN CRIMINALS.

Professor M. Benedikt having commenced to study anthropologically the "great criminals" of Vienna, has communicated some results of his examination of the brain and skull of Hugo Schenk, a notorious murderer of women, to the *Wiener medizinische Blätter*, January 1, 1891. The brain presents much that is interesting. In each hemisphere the internal parieto-occipital fissure shows no direct adjunction to a common stem with the calcarine, but enters the latter by an irregular lateral offset. The calcarine sulcus communicates with the fissure (termed "limbic" by the author) separating the gyrus hippocampi from the temporal convolutions. This limbic sulcus further joins the collateral, and by its rectilinear form evidences aplasia of the gyrus hippocampi, as has frequently been observed in epileptics. The separation of the gyrus hippocampi from the lobulus lingualis by a fissure, instead of conjunction by a wide bridge, is entirely opposed to the type of gyrencephalous animals and of normal man; it always points to a great disturbance in the balance of the constructive force. The confluence of the calcarine fissure with the limbic must also be regarded as a stigma of high grade. On the mesial surface of the left hemisphere aplasia of the quadrate lobule is noticeable through operculation. On the right hemisphere a branch of the collateral fissure courses around the lower outer margin and joins the first temporal sulcus. On the outer surface of this hemisphere the anterior central and the angular are the best developed gyri. The outer aspect of the left hemisphere reveals arrested growth of the frontal lobe, with high development of the two central gyri. A double connection of the central fissure with the first frontal sulcus insulates the lower part of the upper half of the anterior central convolution. The parietal lobe and two external annectants are markedly hypoplastic. In strong contrast therewith is the bulky development of the occipital lobe and adjacent parts of the second temporal convolution. This very unequal development of the various brain segments indicates defective cerebral equilibrium. Taking into account the extraordinary development of the sexual

passion in this murderer, it was specially interesting to discover what parts of the brain showed a preponderence of growth, and to consider whether those parts could be associated with the cortical sexual life. In this case it would appear that the most important seat of the cortical sexual existence is in the left occipito-temporal lobe. The cranium bears as strong evidence of degeneracy as the brain; it is grossly asymmetric—the right fronto-parietal and fronto temporal and left occipito-parietal and occipito-temporal regions being prominent, and the whole base of the occiput, particularly on the left side, bulging downwards. Internally and externally the cranial sutures are almost obliterated.—*British Medical Journal.*

THE LEGAL VIEW OF INSANITY COMMITMENTS.

Judge David McAdam, the President of the Society of Medical Jurisprudence (New York), in a recent discussion said that the law relative to commitments of insane persons was not generally understood. He would venture the assertion that of the 17,000 persons now in custody in New York State on charges of insanity not more than 1,000 had been committed according to process of law. He declared that a certificate signed by two physicians and attested by a judge did not constitute a process of law. Before a person could be legally deprived of his liberty he was entitled to a hearing, a trial before a jury, and an adjudication of his case.

The common law defined what should be done in such cases. The statute law merely defined certain things that should not be done. A magistrate's indorsement on a certificate of insanity signed by two doctors simply attested the respectable standing. His signature added no force to the commitment, and should a person thus committed prove to be sane, he or she would have a good cause of action against the doctors for perjury, conspiracy, and civil damages.

BEER-DRINKING EXTRAORDINARY.

Beer-drinking amongst students in Germany and other Continental countries is proverbial, and we may say that the average Englishman is a beer-drinker if not a teetotaler. In Ireland and Scotland alcohol in the form of spirits is the chief beverage. In the prosperous times of 1873 and 1874 in this country, the working collier was said to have forsaken his beer and taken to drinking champagne, but the ensuing depression soon put an end to this. Now, however, with a return of prosperity in the coal trade, we find his beer-drinking propensities developing. An extraordinary state of matters was proved to have taken place at Ince, near Wigan (during an inquiry by Mr. Brighouse, the county coroner, into the death of a man who had been drowned in the Leeds and Liverpool canal). A comrade of the deceased stated that he had seen him the previous afternoon, and up to that time he might have had a dozen pints of beer (six quarts). At night they had two glasses, and afterwards four small glasses of whisky. It was further shown that in the course of the afternoon and evening the deceased and another man had a wager as to who could drink three pints of beer in the shortest time, and that he drank these three pints in under five minutes' time—in fact, in half the time it took the other man. No wonder this man, when he started to go home, lost his way in the darkness and fog, and that when he fell into the canal he was unable to help himself out. The beer drunk by the Germans and Bavarians is a much lighter beverage, and therefore probably contains less alcohol. Could not the British brewer concoct a beverage which would be less intoxicating? It is a popular notion that no harm can result from the use of beer, that delirium *a potu* never follows its employment. But this is a delusion; gastric and hepatic derangements are common from its abuse, and in the cases of continuous beer-drinkers, such as beer-sellers and draymen, delirium tremens is not unknown.—*Lancet.*

THE PAUPER INSANE OF NEW YORK STATE.

The bill before the legislative bodies of New York, appropriating the necessary money for carrying into effect the law passed last year making the pauper insane a State charge, has probably at the present writing become a law. For a wonder, party lines and selfish schemes have been inoperative. When New York decided last year to remove the insane from the poorhouses and place them in State asylums she ought to have provided the funds for making the transfer. But reforms move slowly. Those who had charge of the bill of 1890 felt that they had done the best they could in securing its passage without the means to make it effective. This year they have introduced the supplemental measure. The appropriation asked for is a modest one, while the amount of good which it will conserve can hardly be over-estimated.

A MEMORIAL TO PIROGOFF.

During the Congress of Russian Medical Men recently held at Moscow, a sketch of the proposed memorial by the Russian Academician, Mr. Sherwood, was exhibited in the hall of the University. The great surgeon is represented as seated on a chair, with a skull in his hand and an open book at his feet. The sides of the pedestal are adorned with crowns of laurel, and on the front of it is the inscription in Russian, "To Nicolai Iwanowitsch Pirogow, the Thinker-Surgeon. 1810-1881."

LEPROSY IN RUSSIA.

The municipal authorities of Riga are about to erect a leper-house at a distance of from six to seven versts from that city, at an estimated cost of 55,800 roubles. This includes a house for the medical superintendent and one for the warden, besides a post-mortem room, etc. Although the number of lepers in Riga and its neighborhood amounts to about 100, the new lazaretto will contain only 40 beds. As isolation is not compulsory, it is thought likely that accommodation thus provided will be sufficient for the lepers who voluntarily seek admission. It is expected that a hospital for lepers, with accommodation for 40 or 50 patients, will be opened some time in the spring, at Nennal, a place about 70 versts from Dorpat. A branch institution, with 10 or 15 beds, will also be established in the immediate neighborhood of that city, which will serve the purpose of a receiving house for the hospital at Neunal.

PRACTICAL NOTES.

SCIATIC TABLETS.

℞. Tinct. colchici
Tinct. cimicifugæ
Tinct. aconiti
Tinct. belladonna } āā, m. ¾. M.
S. One tablet.

—*Star on Nervous Diseases.—Pharm. Record.*

AMYLHYDRATE.

The dose of this liquid is about a drachm, but it is not very soluble in water. A small teaspoonful may be given in a glass of beer, or the following may be used:

℞. Amylhydrate, ʒij.
Aq. destill.,
Aq. flor. aurant., } āā, ʒij.
Syr. cort. aurant., ʒj. M.
Sig. One-half at night.

—*Correspondenzblatt f. Schweizer Aerzte.*

ARREST OF WHOOPING COUGH BY MANIPULATION OF HYOID BONE.

Naegely in *La Semaine Médicale* September 3, reports on a new manipulative method of arresting the paroxysms of whooping cough and of relieving neuralgia of the fifth nerve. Over fifty patients have been treated successfully by the following procedure: the operator stands in front of the patient and with his thumbs elevates the greater cornua of the hyoid bone, a purchase for the index fingers being obtained by resting them behind and above the ears of the patient; the other fingers rest upon the neck. Relief having followed the use of this method in a number of cases of pertussis, Naegely next applied it, with very general success, in a number of other cases of nervous disorders, such as neuralgia of the fifth nerve, migraine, globus hystericus and nausea of nervous origin. According to his experiments, a single application of elevation of the hyoid and larynx, maintaining them in that position for a minute to a minute and a half, has frequently sufficed to remove the pain or distress completely but, in some cases the procedure has had to be repeated several times. The scientific explanation of such results as these is not very tangible; but Naegely inclines to the opinion that those results depend upon one of those phenomena of inhibition, so well formulated by Brown-Séquard, but the exact mechanism of which remains to be determined.

NIGHT TERRORS SUCCESSFULLY TREATED BY BELLADONNA.

Dr. Lorenzo Hale, of the *Albany Medical Annals*, writes in its December issue regarding the epileptiform nature of the night terrors of children. A certain proportion of these cases are beyond question an evidence of nocturnal *petit mal*, and those are the cases in which diurnal epilepsy ultimately supervenes. It was in this view that Trousseau's method of treatment by the administration of belladonna in epilepsy was tried in a severe and protracted case of night terrors. Various other means had been tried and had failed, when there were given the patient, a boy of 4 years, five drops of the tincture of belladonna at night. The dose was increased one drop each night until ninety drops were given at one time. The father of the patient was instructed to be careful and exact, and he was faithful and persistent. The results were most satisfactory; not one severe attack of the terrors was experienced after the beginning of the treatment. The severity of the attacks gradually diminished; when no symptoms whatever of the nervous trouble had appeared for more than two months, the dose was decreased ten drops each night. The relief was almost immediate, and there has never since been any recurrence of the trouble. The general final history of all such cases is less favorable, ending as they so often do in epilepsy proper, preceded by a lack of vivacity or a transitory beclouding of the intellect during the day as the disease extends from the night to the daytime.

INFANTILE DIARRHŒA.

℞. Ferri. sulph.,
Sod. salicyl., āā, gr. x.
Glycerinii, ʒiij.
Aq. dest., ʒijss. M.

Sig. A teaspoonful every one, two, or three hours.

—*Canada Lancet.*

HÆMORRHOIDS.

The following is suggested in the *Medical Mirror* as an excellent salve:

℞. Cocain. muriat., gr. xx.
Morphinæ sulph., gr. v.
Atropinæ sulph., gr. iv.
Acid tannic. pulv., gr. xx.
Vaseline, ʒj.
Olei rosæ, q. s. M.

Sig. Apply after each evacuation. Contents of bowels must be kept soluble.

SEMINAL EMISSIONS.

As a direct means of diminishing the frequency of nocturnal emissions, Bumstead recommends:

℞. Potassi bromidi, ʒj.
Tr. ferri chlor., ʒj.
Aquæ pur., ʒiij. M.

Sig. One or two teaspoonfuls in water an hour after meals and at bed-time.

—*Canada Lancet.*

FOREIGN CORRESPONDENCE.

LETTER FROM PARIS.

(FROM OUR OWN CORRESPONDENT.)

Koch's Treatment of Tuberculosis—The late Dr. Baillarger—A French Rejoinder to the Edmunds Bill—Another Cure for Consumption—Death of Baron Haussmann—An Important Legal Pronouncement—Is Cocaine, employed as a Local Anæsthetic, Dangerous?

In this medical centre, as elsewhere, the new remedy for tuberculosis has been, and is being, extensively studied at the various hospitals. In a series of admirable lectures, Professor Cornil has given a faithful account of the results of inoculations on his own patients of the Laënnec Hospital. These results do not differ materially from those recorded by other observers, if we except the occurrence of albuminuria in certain instances. The dose did not generally exceed 1 milligram, and this commendable caution has been imitated by most operators in Paris. At the St. Louis Hospital a committee of physicians and surgeons has been appointed to report on the effect of the lymph on the various forms of tuberculosis, and their report will soon be forthcoming. So far as one can gather from the opinions expressed by those most competent to judge, the lymph, however marvelous its diagnostic properties in a large proportion of cases, and however great the amelioration produced by it in lupus may be, has not hitherto fulfilled, as a curative agent, the expectations raised at its *début*. A leading article in the *Paris Médical* of January 10 bears this significant title: "Résurrection du tubage du Larynx. Enterrement des injections de la lymphe de Koch." The writer recalls the successful resuscitation by O'Dwyer of an idea emanating originally from a Frenchman thirty-two years ago, and prophesies that thirty-two years hence Koch's treatment will, on the contrary, have passed into the limbo of things forgotten. The writer avers, on Debove's authority, that in fourteen indubitable cases of tuberculosis,[1] the lymph failed to provoke any reaction whatever. He, finally, adduces as a reason for the renunciation of the method the fact that, while the remedy has failed to cure a single case, it has already caused the death of more than twenty patients: seventeen in Germany, four in Austria, one in Paris and one in Brussels—one fatality occurring in a case of lupus.

M. Léon Petit (Soc. de Méd. Pratique, December 18, 1890) gives it as his opinion that Koch's lymph should be relegated to the laboratory until its range of action can be properly verified. Having, in collaboration with MM. Cérémonie and Gautrelet, found by analysis that the active principle of Koch's liquid is an amine, he has succeeded in fabricating a lymph possessing identical properties. This product he has denominated "*la lymphe Francaise*," and he promises, when the results of experiments now in course of execution on tuberculous and normal animals of different species shall have been rigidly checked and controlled, that he will publish the mode of preparation of this new product.

The eminent alienist, Dr. Baillarger, died on the last day of 1890, at the ripe age of 82. One of the last survivors of the pupils of the famous Esquirol, whose interne he was at Charenton, he was for a long period physician to the Salpêtrière Hospital, and had attained to the crowning dignity of President of the Academy of Medicine. To his indefatigable industry we owe a great number of works on mental medicine which have become classical. These have recently been collected into two volumes, and they cover pretty nearly the whole range of the various manifestations of mental derangement. Melancholia with stupor, *folie à double forme*, hallucinations, general paralysis, the unfolding of the brain in mental development, the normal structure of the cortex, cretinism—these are a few of the subjects treated and elucidated by him in a masterly manner. His obsequies took place on January 4, in the presence of the newly elected President of the Academy of Medicine (Professor Tarnier), and a large gathering of representative men.

In a leader in the *Gazette Hebdomadaire* of January 10, M. Lereboullet calls attention to the warning issued by Professor Grandeau, Director of the Eastern Agronomic Station, on the danger attending the importation into France of American meat, and with it, of actinomycosis. It is stated that the supervision exercised at Chicago is totally inadequate, as two inspectors are responsible for the examination of an average of 10,000 oxen and 20,000 pigs a day. The Edmunds Bill conferring on the President plenary retaliatory powers on foreign nations whose traders export into the States articles intended for human consumption found to be adulterated, M. Lereboullet hopes that France will not, in her turn, be behindhand in instituting like measures to protect her citizens against the introduction of actinomycosis.

The *éclat* attending the appearance of Koch's liquid in the therapeutical arena has not failed to stimulate the inventive faculties of would-be emulators of the learned Teuton. Some two months ago, the lay press, headed by the widely read *Petit Journal*, heralded, with a flourish of trumpets, the discovery by a hitherto unknown French practitioner named Mathieu, of the obscure village of Estissac, of an infallible cure for pulmonary consumption. The remedy was said to consist mainly of a kind of electricity generated by plants. The happy discoverer, finding Estissac

[1] Observed by Rémond at Berlin.

too narrow a field for the display of his energies, has migrated to Paris, where he has founded a clinique. He is said to be now earning 2,000 francs a day! Unlike Koch, he makes no secret of the composition of his remedy; anyone may read it in the *Annales d'électro dosimétre*. Here it is!

Formula No. 5 de M. Mathieu pour la tuberculose:
Electricité verte, 30 globules.
Pectoral[2], 30 globules.
P^4, 20 globules.
$P^{1,2}$ āā, 10 globules.
$C^{9,4,10}$ āā, 10 globules.
Fébrifuge[1,2] āā, 5 globules.
A^1, A^4 āā, 5 globules.
Vermifuge[1,2] āā, 5 globules.
S^1 S^2, 5 globules.

The nature of the ingredients of this somewhat cabalistic remedy will, doubtless, prove a puzzle to your readers, but that does not, it appears, prevent M. Mathieu having hosts of adherents among the public of "la ville lumière."

If the late Emperor, Napoleon III, was not uniformly happy in his choice of instruments to carry out his will, no sanitarian will accuse him of having committed a mistake in selecting Baron Haussmann as Prefect of the Seine. Every one knows how this much-reviled functionary "haussmanized" Paris, creating, with an audacity we must all admire, new broad boulevards, uprooting rookeries and foul dens into which pure air never penetrated, and transforming Paris into the airy, well-lighted capital that now ranks second in Europe in point of health. This modest sanitary reformer has just died at the advanced age of 92. It says much for his integrity that, since his retirement in 1870, he had subsisted on a paltry pension of less than $1,500 a year. His autobiography appeared recently. Being a Protestant, he was interred at the Church of the Redemption, in the rue Chauchat, with military honors.

Charlatanism of the good old-fashioned type is exceedingly rife in certain country districts in France, and many of these irregular practitioners attain to a degree of popularity the practical demonstration of which may, as in the following instance, lead their admirers into serious trouble. In the month of March, 1890, Jean Sibuet, bone-setter and Councillor-General of his canton, was sentenced to pay a fine for having illegally practiced the medical art. His enlightened admirers immediately convened an indignation meeting at a café, and opened a public subscription to cover the amount demanded of their idol by the exactions of a tyrannous law, any surplus to be devoted to the erection of a statue to Sibuet's father, who was also a famous bone-setter. The conveners of this meeting were, in their turn, prosecuted, and mulcted in various sums. This judgment being appealed against, the Chambéry Court has confirmed the finding of the lower tribunal, and declared that the collecting of money for such a purpose is a contravention of the law.

On the 2d of December, 1890, M. Hallopeau reported to the Académie de Médecine a case of chronic cocainism induced by a single injection into the gum of 8 centigrams of hydrochlorate of cocaine. From a study of this case, he believes himself authorized to deduce the following conclusions:

A single injection of cocaine, even in a small dose, may not only produce immediate toxic symptoms of a grave character, but may give rise to symptoms persisting for several months. These distant symptoms are analogous to those perceived sometimes immediately after the injection, viz.: obstinate headache, insomnia, numbness of the extremities, attacks of faintness, dizziness, prostration, loquacity and a state of great agitation. These accidents are chiefly observed in very excitable subjects.

In the current number of *La Médecine Moderne*, M. Reclus, who employs cocaine largely, endeavors to controvert these statements of M. Hallopeau, and asserts that, properly managed, this valuable anæsthetic is innocuous. The rules to be followed in the management of this drug are, according to M. Reclus, as follows:

1. The quantity of cocaine injected should never exceed 12 centigrams, 2, 4, 6, or exceptionally 8 centigrams sufficing for most minor operations.

2. Employ a *weak solution* (2 per cent.).

3. Avoid the introduction of the drug into the interior of a blood-vessel. The best way to avoid the evil consequences of such a *contretemps* is to push the needle into the tissue slowly, and while so doing to press on the piston-rod at the same rate. In this manner, even if a vessel be pierced, only a small proportion of the solution can mingle with the blood contained in the wounded vessel.

J. H. B.

DOMESTIC CORRESPONDENCE.

LETTER FROM NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Experimental Koch Inoculations—Hypodermic Injections of Aniline and Sterilized Oil in the Treatment of Phthisis—The New York County Medical Association—The New York Medico-Legal Society and Hypnotism—American Electro-Therapeutic Society—Miscellaneous Items.

While it is, of course, far too soon to judge of the ultimate results of the treatment, the very extended series of experiments with the Koch inoculations which have now been carried on in this city have apparently been attended with effects for the most part corresponding with those re-

ported from Germany. There can be no question, however, that the warning note sent out by Virchow has very properly had the result of making our hospital physicians proceed with marked caution in the matter, and it is probably safe to say that in cases of tubercular meningitis, for instance, the lymph will not again be employed. There appears to be sufficient ground for the belief that pulmonary tuberculosis in the early stages of the disease is checked, and may be cured by the injections, and there seems to be a general agreement as to their beneficial effect in cases of lupus.

But even in lupus, according to Dr. P. A. Morrow, the well known dermatologist, while the observations made would seem to show that the results thus far obtained may be regarded as satisfactory and promising, they cannot be called conclusive in any sense as yet. There should be much hesitation, he claims, about declaring that there has been a cure effected in a case of lupus, as it is well known how prone the disease is to break out again after apparent disappearance. A relapse being liable to occur after six, twelve, or even eighteen months, he would not be satisfied that a cure had really been made until the patient had been under observation a very long time.

For some time past Dr. George F. Shrady, editor of the *Medical Record*, has been experimenting with the lymph on cancer cases at the New York Cancer Hospital, and it is even said that it has been used in leprosy in this city, but it does not seem at all likely that any very definite results will be obtained in such cases. William Degan, the consumptive selected by Dr. Shrady from the St. Francis Hospital to be sent to Berlin for treatment, has returned to New York, and is again at the hospital undergoing injections. It is reported that his condition is now considerably improved, but whether this improvement will continue or not is somewhat problematical, as it is thought that the disease was perhaps too far advanced in his case to afford ground of hope for the best results.

In New Haven, Conn., where the Koch treatment was employed for the first time in this country, the injections having been begun on December 3, Prof. Francis Bacon is reported as having said recently: "The original representation in regard to the curative effect of the lymph on lupus are confirmed, so far as the present experiments have gone, but I can hardly say as much regarding its effect on pulmonary tuberculosis. I do not care to express an opinion regarding each individual case, but I will say that there has been an improvement in the condition of the patients, or, in other words, that they are better than they were before the use of the remedy was begun. It is hardly time yet to demonstrate the full efficacy of the lymph, but enough is known to assure us that it is a most powerful agent."

For some time past very encouraging reports have been made concerning the treatment of phthisis at the House of Rest for Consumptives, of this city, by Dr. C. E. Bruce, and at the last meeting of the Medical Society of the County of New York that gentleman reported some of the results obtained by him, and gave an explanation of his method, the essential point of which, it seems, is the hypodermic injection of aniline and sterilized oil in increasing doses. The plan of treatment, he states, is the result of an extended course of investigation into the nature of the tubercle bacillus, and long before the announcement of the discovery of Koch's remedy, he was engaged, assisted by Drs. J. S. Healy and T. W. Rogers, in studying the effects of various substances upon the bacillus. He received his first clue, as it might be called, from a German medical journal, and this leading his thoughts in a special direction finally resulted in the experiments with the remedy named. These experiments have been very satisfactory as far as they have gone, but sufficient time has not elapsed to speak of the results at all definitely. Should these eventually prove as encouraging as Dr. Bruce hopes, he thinks a remedy will be in the hands of the profession which will be free from many of the objections which have been made against Koch's lymph. Thus, it is an entirely harmless material which can be readily furnished to any practitioner in the country, there being no necessity for culture, as in the case of an organic substance like the lymph. Its use can be safely undertaken without the special experiment and careful watching which the employment of the latter demands, and another point in its favor is that as far as the experiments thus far made with it go to show, it seems to be most effective in the advanced stages of phthisis, where the lymph is apparently least beneficial. Since the first of January patients side by side in the House of Rest for Consumptives have been treated respectively by the Koch and Bruce methods, and the results reported have been decidedly in favor of the latter. In this institution, it is to be remembered, that the subjects are, as a rule, in the advanced stages of the disease. The profession has naturally learned to be somewhat skeptical in regard to reported remedies in phthisis, but further developments in this matter will be awaited with interest.

At the annual meeting of the New York County Medical Association the following officers were elected: President, Dr. S. B. W. McLeod; Vice-President, Dr. Wm. T. White; Recording Secretary, Dr. P. Brynberg Porter; Recording and Statistical Secretary, Dr. Augustus D. Ruggles; Treasurer, Dr. John H. Hinton; Members of the Executive Committee, Drs. Edward Sanders, N. J. Hepburn, Wm. B. De Garno, and George T. Harrison. The report of the Statistical Secretary, Dr. Ruggles, showed the Association to be

in a most flourishing condition. One year ago there were 430 members on its roll. During the year it lost by death three members, including the President, Dr. Charles S. Wood, and by removal and other causes fifteen members. On the other hand, it received an accession of 171 new members, so that there are now on its roll 583 active members.

At the last meeting of the Academy of Medicine there was a general discussion on chronic cervical adenitis in children, under the auspices of the Section on Pædiatrics; the discussion on etiology, symptomatology and diagnosis being opened by Dr. A. Jacobi, that on medical treatment by Dr. Wm. H. Thomson, and that on surgical treatment by Dr. Frank Hartley. On this occasion Dr. Alfred L. Loomis was re-elected President and Dr. Edward L. Keyes was elected a Vice-President of the Academy.

At a recent meeting of the New York Medico-Legal Society a special committee on hypnotism, of which Dr. E. Morgan, Jr., was chairman, reported that after a year's consideration of the subject they regarded it safe to say that the following facts had been established:

1. Hypnosis, or artificial trance sleep, is a subjective phenomena, and may be self-induced through expectation alone, through fright, by religious ecstacy, or any enrapturing emotion.

2. Hypnotism is not in itself a disease.

3. Hypnotism is recognized in three stages—lethargy, somnambulism, and catalepsy. The transition may be immediate.

4. Hypnotism has been serviceable in medical and surgical practice, both as a therapeutic agent and in some cases as an efficient and safe anæsthetic.

5. The illusory impressions created by hypnosis may be made to dominate and tyrannize the subsequent actions of the subject.

In the latter part of January there was organized, at the New York Academy of Medicine, the American Electro-Therapeutic Association, composed of physicians in different parts of the country who are specially interested in the various forms of electrical medical and surgical treatment. The following officers were elected; President, Dr. G. Betton Massey, of Philadelphia; Vice-Presidents, Drs. W. J. Morton and A. H. Goelet, of New York; Secretary, Dr. Wm. H. Walling, of Philadelphia; Treasurer, Dr. Geo. H. Rohé, of Baltimore; Executive Committee, Drs. H. R. Bigelow, of Philadelphia, F. H. Martin, of Chicago, Wm. H. Hutchinson, of Providence, R. I., and C. D. Palmer, of Cincinnati.

The report of the Health Department of the city of Brooklyn, recently transmitted to Mayor Chapin, shows that the total number of deaths there during the year 1890 was 19,773, as compared with 18,480 in 1889. The deaths from phthisis amounted to 2,161, and from pneumonia to 2,319. A much larger number of cases and deaths were reported from diphtheria than any other contagious disease, and not a single case of small-pox was reported. Fifteen thousand births were reported—about 1,000 more than in 1889.

The records of the State Board of Health show that, as usual, November was the healthiest month of the year. It has been found to be the case that invariably the death-rate in the State is lower in this than in any other month. The average daily mortality for the past five years has been 260, while that of November has been 225. In 1889 there were 42 less deaths daily in November than the daily rate for the year; in 1888 there were 52 less, in 1887, 21 less, and in 1886, 9 less per day. The average number of deaths per day in 1890 was 305, and during November 257, or nearly 56 less per day. From zymotic diseases the mortality in November, 1890, reached only 146 in every 1,000 deaths from all causes, and this is lower than the average for the month of November, which is 182 per 1,000.

The 26th of January was a proud and happy day for the Italian colony here. On this occasion there was inaugurated, with appropriate ceremonies, under the auspices of Baron Fava, the Italian Minister at Washington, the "Institutio Italiano," or Italian Home. This institution is located on Second avenue, and occupies a four-story building fronting on the avenue and a two-story building in the rear. Within these quarters are contained a hospital with wards for both men and women; a benevolent bureau for the relief of the poor, a school for the purpose of preparing Italian children for the public schools, and a bureau for the protection of Italian immigrants and the promotion of Italian colonization. The idea of a benevolent enterprise of this kind has, for a number of years, been in the minds of the leading Italian residents of this city, but it was only when the Chevalier Riva—who is now the Honorary President of the institution—came here as Consul-General of Italy in 1888, that the project assumed definite shape. At his call more than $20,000 was subscribed in less than a year by the Italians of the United States. This amount was considerably increased by the dues of those becoming members of the Institute, and the Italian Government, having been made interested in the patriotic scheme, sent a contribution of $2,000. The promoters of the Home were therefore able, in September last, to purchase the property now occupied for $31,500.

On the first floor of the Home are the manager's office, dispensary, pharmacy, waiting-rooms and an ambulance entrance. The second floor has rooms for the Secretary and other officers of the institution, a medical board room, a library and a reception room. The latter is a handsome apartment, gratuitously frescoed by a firm of Italian decorators, and contains a beautiful piano, the

gift of Italian piano-makers. All the rest of the furnishing of the room was presented by Signor Salvatore Cantoni, President of the Home, and among the pictures are portraits of Washington, Garibaldi, Mazzini, and the King and Queen of Italy. On the third floor are the hospital accommodations for women—twenty-seven beds in four rooms—and all facilities and conveniences for patients, physicians and nurses, and the fitting-up of this floor has been chiefly paid for by M. Barsatti, editor of the Italian paper *Il Progresso*, in memory of a deceased daughter. The fourth floor is similar in its appointments, and is designed for male patients. The first floor of the rear building contains a large assembly hall for the meetings of the institution, capable of seating 250 people, and it was in this that the inauguration ceremonies were held. On the second floor are rooms for the managing boards of the various departments of the institution, and a large room intended especially for sick Italian sailors. Altogether the arrangements of the new Home are very complete and satisfactory, and reflect much credit on its philanthropic founders. It is estimated that the property is now worth $50,000, and there can be no question that the institution will accomplish a most excellent work.

In January there died at Flushing, Long Island, a Mrs. Stillwaggon, who was probably the oldest person in the State. She is said to have reached the age of 105 years and 4 months; it being stated that she was born on September 18, 1785. Her birthplace was Tarrytown, on the Hudson, and she came of long-lived ancestors, her grandmother, it is said, having attained the great age of 106. Until she reached the age of 96 Mrs. Stillwaggon did all her own housework and made her own dresses, and on her 102d birthday she made a cake for a church fair.

That inveterate smoking does not always shorten the span of human life would seem to be shown by the case of one Isaac Brandenstein, who recently celebrated his one hundredth birthday in this city. Although very moderate in the use of liquors, he states that he has smoked habitually and freely, ever since he was 14 years of age. He can even now smoke most of the day, provided the tobacco used is of good quality, and his only complaint is that good tobacco is too expensive in New York. On getting up in the morning he goes down to the street door and smokes a couple of cigars, after which he eats his breakfast. Then he takes a pipe, and alternates this with cigars, with brief intervals of rest, until 6 o'clock in the evening, when he has supper. He does not take any meal in the middle of the day. He says he feels somewhat "weak and stiff in the joints," but on the whole his health is remarkably good for a centenarian, and on the last Day of Atonement, being a devout member of the Jewish faith, he went to the synagogue early in the morning and staid there until night, and ate nothing whatever from 6 o'clock in the morning until sunrise on the following day. Still, notwithstanding all this, we would hardly advise anyone who was anxious to attain the age of one hundred years to smoke all day as the best way of attaining this end.

In regard to the agitation existing in various parts of the country on the oleomargarine question, Professor Charles F. Chandler, the eminent chemist, who was for a number of years President of the New York Board of Health, remarks very sensibly: "There is more unceasing and unreasonable opposition to this perfectly healthy and pure product than I know of in any other such direction. Oleomargarine is prepared from beef suet, and it contains precisely the same chemical constituents as butter made from cow's milk; the only difference is that it is produced by a chemical process entirely, instead of partly by the intermediation of the cow. The strong opposition to oleomargarine is instituted for the most part by the farmers who produce butter, aided by the dealers, who find larger profits from the sale of butter than they possibly could obtain from the handling of oleomargarine. The people who pretend to find fault with this beef suet product, however, find no fault whatever with precisely the same material in mince-pies or plum-puddings. Some of the State Legislatures have enacted very extreme laws against oleomargarine in deference to the 'farmer vote,' and the General Government has discriminated against it and against our poorer citizens by placing an internal revenue tax upon it—like the tax upon whisky and tobacco—presumably with the idea that its consumption is detrimental, like the too liberal consumption of tobacco and spirituous liquors. Really, it is 'politics' pure and simple that prevents our people from enjoying, at a nominal price, a perfect substitute and equivalent for butter, the high price of which renders the latter an unwarranted extravagance to many. And all for the votes of the farmers and dealers!"

The reports from the Saturday and Sunday hospital collection thus far received show the very handsome sum of nearly $55,000, and the returns are still incomplete. P. B. P.

STRYCHNINE IN SNAKE-BITE.—A controversy is raging in Australia on this subject. The treatment of snake-bite by the hypodermic injection of strychnia was introduced by Dr. Mueller, and evidence of its success has been adduced by other medical men who have tried the plan. Dr. T. L. Bancroft has found, by experiments on guinea pigs, that the method is useless. Recovery from snake-bite, it is well known, does imply cure, and it is not easy in particular cases to distinguish the one from the other.

SPECIAL CORRESPONDENCE.

Report of a Case of Malformation of the Female Generative Organs.

To the Editor:—Without going into the history of the subject or discussing the various classifications of uterine and vaginal malformations, I desire to report the following case:

The patient is 46 years old, married for many years, about 5 feet 10 inches in height, strongly built, and with a decided masculine appearance and voice. Her menstruation has always been regular and easy.

In November, 1890, she had a fall to the ground, alighting in a sitting posture, after which she complained of severe pain in the back and coccygeal region, and from these facts I was led to make an examination. The discovery which I made shed no particular light on the cause of the pain, but it proved to be a matter of interest to me, and explained to the patient the cause of her sterility. In making a digital examination I found the vagina to be roomy, and with two fingers I could reach its upper extremity, but I was wholly unable to find any trace of the cervix uteri. A bimanual examination proved the absence of the uterine body. While conducting this examination a forcible and expulsive contraction of the vagina took place, and at the same time the patient complained of excruciating pain in the back. In a few days I made the second examination, this time with a Brewer's speculum. After the blades were fairly well separated a contraction as above mentioned took place, causing great pain, and with such force that I feared the blades of the speculum would be bent or broken before I could run the button back, allowing the bladder to close.

From the facts recited I arrived at the following conclusion: The vagina and uterus are continuous, and there is no line of demarkation indicating where the vagina and uterus unite. It might be as well to say that there is *no* uterus, but the vagina is supplied with thick muscular walls, which are capable of wide dilatation and forcible contraction. J. T. MCSHANE, M.D.

Carmel, Ind.

The Present Status of the Koch Treatment in Germany.

To the Editor:—I have just received a letter from Berlin, some quotations from which I think will be of special interest to your readers as indicating the present status of the Koch treatment in Germany. He says: "Dr. Koch's remedy is still with us, but becoming less popular daily, if I may judge from students and others who have an opportunity of witnessing the treatment. Beside the French and not a few German opponents who are animated by feelings of rivalry or the like, some there are of late who, closely observing the matter, do not hesitate to condemn the treatment as both fruitless, dangerous and unscientific, since it seems to diminish the patient's strength and physical resistance by its local and general powerful action, and hence a condition favorable to the extension of tuberculosis. Koch's announcement of January 15, besides the disclosure concerning the composition of the substance, gives little more than a repetition of his first declaration for the worth of his discovery Quite positive indeed is his renewed assertion, but yet, he gives us no additional matter to substantiate his position and encourage the public. A friend of mine, candid and intelligent, who is taking a private course in physical diagnosis under one of Gerhardt's assistants, and seeing much of the cases, gives very unfavorable reports. An assistant of Bergmann's also informs me that the number of tubercular patients treated in his hospital has decreased from some hundreds to a small fraction of one hundred. That of three test cases of laryngeal tuberculosis, with but little involvement of the lungs, under observation for some five or six weeks, and considered favorably at the beginning, two have died and the third is fast after them; that recently one case of lupus was operated upon surgically without any accompanying injection treatment. Bergmann says nothing against the Koch method, but this action is perhaps significant. I myself am inclined to place confidence in Koch and his opinion, with all due allowance for his personal bias, and think we should be very slow to condemn it until we know what he knows." At all events, it is better for the public to be disappointed now, even to an exaggerated extent, before more time and strength is spent in vain.

E. FLETCHER INGALS, M.D.

Chicago, Feb. 10, 1891.

Shall The Journal be Removed to Washington?

To the Editor:—As a member of the Association for thirty-six years, I am in favor of THE JOURNAL being published at Chicago. CHAS. G. BACON, M.D.

Fulton, N. Y., Feb. 10, 1891.

To the Editor:—Keep THE JOURNAL in the central city of the country by all means. No other city presents better advantages for making it a success than Chicago.

HUGH MCCOLL, M.D.

Lapeer, Mich., Feb. 12, 1891.

To the Editor:—The question of the best location for the publication of THE JOURNAL should be discussed with fair argument and common sense.

Does the advertising department greatly assist the financial success of a medical publication? To this question there is but one answer, and wherever published, its advertising pages would not probably be increased beyond their present number, if equalled.

Would the number of subscribers be increased if removed?

From no city could it be distributed more rapidly nor directly than Chicago.

Would the aspiring, disaffected authors of very important original productions *all* see their names at the head of papers in the first issue after the annual meeting of the A. M. A. if published in Washington, Kalamazoo, or Oshkosh? It seems there has been much nonsense in that line.

Looking at the subject from the standpoint of a country doctor, the editorial work compares favorably with the very best of medical journalism.

Let us keep it in Chicago. O. A. REA, M.D.

Marmont, Ind., Feb. 12, 1891.

To the Editor:—I have read with much interest the discussion in regard to removing THE JOURNAL to Washington. The scheme—for it is a scheme—is not a new one; I know that certain medical politicians have had it in view since 1886. The chief idea in view has not yet been brought out in the discussion, and perhaps it is just as well to delay the exposure of it until the next meeting, in May. But as yet no one has put forward a single substantial argument in favor of removal.

The most frequently reiterated argument is that as THE JOURNAL is a national journal it should be published at the Capital of the Nation. This is well enough for Fourth-of-July talk, but it lacks a commonsense basis; it is silly, and its silliness has not even the doubtful merit of sentimentality. One may ask, why is none of the money of this country coined at Washington? for the coinage is a National affair. Why not do it all at the Capital of

the Nation? Harrisburg is the capital of Pennsylvania; Why do not Lea Brothers & Co. remove their business and their journals to the State Capital? For the simple reason that they are business men and know that the fact that Harrisburg is the capital of the State will not increase their business. If it were possible to move the Yellowstone Park to Washington there is no doubt that some would be in favor of such a move; and when sifted to the bottom it would be found that personal and private interests were at the bottom. Just so with the scheme to remove THE JOURNAL, as will be made clear when the matter comes up at the meeting in May. I think I know as much of the inside history of THE JOURNAL and of this movement as anyone, and my information is for publication at the proper time.

But the question under consideration is a simple business proposition, and I wish to discuss it from that standpoint. The American Medical Association is in business as a publisher. No publisher can conduct a business successfully except in a business centre. There is no publisher in Washington. Why haven't some gone there "because it is the National Capital?" Because successful publishers are business men. There are several newspapers in Washington, but they cannot be compared with the Boston, New York, Philadelphia and Chicago papers. It would cost more to publish THE JOURNAL in Washington than it costs in Chicago. I make this assertion because I am familiar with printing office details.

For the benefit of the readers of THE JOURNAL that have not access to such information I will show them how many business (trade) journals are published in Washington as compared with Chicago. The following list is taken from Rowell's Newspaper Directory for 1890. Since it was published some other journals have been brought to Chicago from New York and places in the East:

CLASS PUBLICATIONS	IN CHICAGO.	WASHINGTON.
Religion	51	1
Agriculture, Bee Keeping, Dairying, Horticulture, Live Stock, Poultry	26	0
Medicine and Surgery	16	0
Deaf, Dumb and Blind	1	1
Children and Young People	7	0
Humorous	3	1
Law	4	5
Insurance	2	2
Real Estate and Immigration	2	4
Building Loan Associations	2	0
Science, Electricity, Mining, Engineering, Mechanics, Milling	14	1
Numismatics, Philately	1	0
Sporting	10	0
Music and Drama	5	0
Fashions	3	0
Household	3	1
Army and Navy	0	2
Freemasonry	1	0
Knights of Labor	1	0
Oddfellowship	2	0
Other National Societies	3	0
Railway Employes	2	0
Miscellaneous Societies	8	4
Temperance and Prohibition	5	0
Negro	4	3
Commerce and Finance	18	1
Architecture and Building	6	2
Art, Decorating and Furnishing	1	0
Books and Newspapers	3	1
Brewing, Bottling, Liquors and Wine	6	0
Carriages	2	0
Clothing, Furnishing Goods, Tailoring and Ladies' Wear, etc	3	0
Coal and Gas	1	0
Drugs, Paints and Painting	5	0
Exporting	1	0
Firemen	2	0
Furniture, Carpets, Cabinet Making, etc.	3	0
Groceries, Confectionery, etc	4	0
Hardware, Crockery, Glassware etc.	4	0
Hotels	3	1
Jewelry and Watchmaking	3	0
Inventions and Patents	0	2
Leather and Leather Products	4	0
Lumber	3	0
Maritime	1	0
Mercantile Pursuits	1	0
Metals and Machinery	4	0
Photography	1	0
Plumbing and Sanitary	1	0
Postal	2	3
Paper, Stationery, Printing, etc	8	0
Railroads	5	0
Sewing Machines	1	0
Laundry	1	0
Brickmaking	1	0
Tombstones	1	0

Further than this, many class journals that have the main office in New York have a branch office in Chicago, and do a large part of the business through the Western office. Many of these class journals are as national as is THE JOURNAL. Why are not more organs of business interests published in Washington? For the same reason that the same kind of publications in St. Louis are not taken to Jefferson City.

It has been said that the business management of THE JOURNAL under Mr. White is not what it should be. But the fact remains that the income of THE JOURNAL from advertisements is now 300 per cent. greater than it was when Mr. White took charge five years ago, when THE JOURNAL was unpopular with advertisers. The income from advertisements should be greater, but it cannot be until certain restrictions now in force are removed. If Mr. White were allowed to conduct the advertising business on the liberal basis of the *Lancet* or the *British Medical Journal*, the income from advertisements could be increased about 50 per cent. or more, in a year, and no one would be injured by it. As the matter stands now THE JOURNAL refuses many advertisements that would be taken by the best and most prosperous journals on earth—the *Lancet* and the *British Medical Journal*. To my own knowledge one of the most vigorous objectors to a more liberal policy in regard to advertisements is a professor in a two-course medical college. Such a man has no right to declaim about the *morale* of the profession until he resigns his Chair or induces his school to reform. No one can conduct a business of any kind on sentiment. No one can conduct a weekly medical jourual in this country without advertisements.

It has been said that the list of subscribers to THE JOURNAL has not been increased to the extent that it should have been. The fact is, canvassers have been sent out, but each one has stumbled up against the "no commission for members by application," become disgusted and quit. No commission is paid for such subscribers, and of course no canvasser will work on such terms.

Again, the amount of trouble that has been caused by the fact that the Secretary and the Treasurer of the Association are almost a thousand miles from the office of THE JOURNAL, has been and must be very great. Dr. Dunglison and Dr. Atkinson surely know that I say this from no personal motive. But I am stating a fact, and what is necessarily a fact.

But there is another and a most important point. Should THE JOURNAL be removed to Washington, it will cease to be of value as an advertising medium to a very large percentage of its best advertising patrons, and it cannot replace these by others. Any one that knows even a very little about advertising and the business management of a journal can see this, because, with all the journals published in the East, it would be unbusinesslike for firms to make use of a Washington journal, and these firms don't do foolish things.

THE JOURNAL has the field in the West. If it vacate the field it has won to occupy one already more than full, its place here will be taken very soon, for Chicago will have a weekly medical journal. THE JOURNAL cannot afford to drop a substance to grasp at a shadow.

Finally, before it is determined to remove THE JOURNAL, and before the matter is brought up at the meeting, let us know who is to be editor in Washington. THE JOURNAL should have an experienced editor. There are no medical editors in Washington, for none of the medical men there have had editorial experience. Before going down into a well it is a safe plan to have a strong

man at the windlass. A tyro, however titled, has no place at the head of an exploring expedition.

WILLIAM G. EGGLESTON, M.A., M.D.

Springfield, Ill., February 16, 1891.

To the Editor:—If THE JOURNAL is to be removed from Chicago I am in favor of removing it to Pittsburgh. Next to Chicago Pittsburgh is the greatest railroad centre in the country, and this is a very important consideration in these times of blizzards and railroad obstructions; besides among our more than two hundred physicians, any one of whom is just as capable to edit a medical journal as any one of a like number of physicians in any other locality in the country, either North or South, East or West. But if THE JOURNAL cannot come to Pittsburgh, then I am in favor of it remaining in Chicago, for it was born, cradled and grew to be a man there, and there is where it ought to stay. It is also ably edited there, besides, Chicago is the most central place in the country. Transplanting sometimes does well, oftener not. Therefore, let THE JOURNAL remain in Chicago. JOHN M. BATTEN, M.D.

Pittsburgh, Pa.

To the Editor:—In regard to the removal of THE JOURNAL to Washington I am of the opinion that it would be a great mistake. THE JOURNAL is not only centrally located, but is ably edited, and a financial success. Under all these circumstances I am of the decided opinion that it should remain just where it is.

SOLON MARKS, M.D.

Milwaukee, Wis., Feb. 17, 1891.

To the Editor:—In regard to the removal of THE JOURNAL.—Washington is not centrally situated. The Capital should have been more centrally located. Let THE JOURNAL remain where it is. P. C. REMONDINO, M.D.

San Diego, Cal., February 12, 1891.

MISCELLANY.

LETTERS RECEIVED.

Aetna, Tenn.: Dr. C. Slaydon.
Bethany, Mo.: Dr. T. B. Ellis.
Boston: Doliber-Goodale Co., Dr. A. C. Garratt, G. W. Campbell.
Braddyville, Ia.: J. B. Crain.
Brockport, N. Y.: Moore's Subscription Agency.
Buffalo, N. Y.: F. C. Schottin.
Burlington, N. J.: Dr. Wm. J. Parrish.
Burlington, Vt.: Dr. A. J. Willard.
Chicago: Kenyon Subscription Co., Dr. C. T. Parkes, Dr. G Frank Lydston.
Chilton, Wis.: Dr. D. La Count.
Cincinnati, O.: Dr. Wm. D. Hamilton, Dr. F. Dowling, Cincinnati Sanitarium, Robert Clarke & Co.
Council Bluffs, Ia.: Dr. J. C. Robertson.
Cuba, N. Y.: Dr. D. J. Tillotson.
Denver, Col.: Jas. Black.
Detroit, Mich.: Parke, Davis & Co., Citizens' Savings Bank, Dr. E. L. Shurly.
Easton, Pa.: Dr. Chas. McIntire.
Eaton, O.: Dr. A. H. Stephens.
Evansville, Ind.: Dr. A. M. Owen.
Fort Dodge, Ia.: Dr. H. G. Ristine.
Fort Worth, Texas: Dr. A. Guthrie.
Friendship, Tenn.: Dr. J. A. Hinton.
Geneseo, Ill.: Dr. W. C. Brown.
Greencastle, Pa.: Dr. J. F. Nowell.
Hartford, Conn.: Dr. T. D. Crothers.
Hickory Creek, Texas: Dr. J. F. J. Stroud.
Indianapolis, Ind.: Dr. O. W. Pfaff.
Jersey City, N. J.: Dr. G. K. Dickinson.
Kansas City, Mo.: Dr. J. H. Thompson.
Kipple, Pa.: Dr. A. B. Frazur.
Lincoln, Neb.: Dr. G. O. W. Farnham.
Los Angeles, Cal.: Dr. L. B. Williams.
Louisville, Ky.: Cal. Fig Syrup Co., Dr. J. M. Ray.
Nashville, Tenn.: Dr. J. D. Plunket, Dr. E. M. Jenkins.
New York City: M. Volkmann, Henry A. Riley, Merchants' Exchange National Bank, F. W. Christern, C. N. Crittenton, J. H Bates, Chas. H. Phillips Chemical Co., R. W. Gardner, Thos. Leeming & Co., Dr. G. Durand, Publishers' Commercial Union, J. F. Madden, Herbert Booth, King and Bro., Med. Dept. Mutual Life Ins. Co., W. P. Cleary.
Paris, Ky.: Paris Medicine Co.
Philadelphia: Dr. W. B. Hopkins, Dr. A. L. Hummel, Dr. R. J. Dunglison, J. B. Lippincott Co., Univ. of Pennsylvania Press, P. Blakiston, Son & Co., Wm. R. Warner & Co.
Pittsburgh, Pa.: G. L. Webb.
Revere, Mass.: Dr. S. N. Nelson.
Rochester, N. Y.: E. S. Jackson.
St. Louis, Mo.: Henry Bernd & Co., Provident Chemical Works, Dr. Justin Steer, Dios Chemical Co., Dr. A. Büttner.
St. Paul, Minn.: Dr. S. D. Flagg.
Salem, Mass.: Dr. W. T. Parker.
San Francisco: Bancroft Co.
Springfield, Mass.: G. and C. Merriam & Co.
Walpole, Ill.: Dr. J. S. Williams.
Washington, D. C.: Wm. Ballantyne & Sons, Dr. J. W. Shrively, Dr. C. H. A. Kleinschmidt.
Westfield, N. Y.: Dr. T. D. Strong.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from January 24, 1891, to February 13, 1891.

Major Julius H. Patozki, Surgeon, granted leave of absence for six months, with permission to go beyoad sea. By direction of the Secretary of War. Par. 5, S. O. 24, A. G. O., Washington, January 29, 1891.

Capt. William Stephenson, Asst. Surgeon, will proceed without delay from Columbus Bks., O., to Fort Wayne, Mich., and report in person to the commanding officer of that post for temporary duty, and upon the completion thereof will return to his proper station. By direction of the Secretary of War. Par. 13, S. O. 23, A. G. O., Washington, January 28, 1891.

Major Calvin De Witt, Surgeon, is relieved from duty at Ft. Hancock, Tex., and will report in person to the commanding officer, Ft. Sam Houston, Tex., for duty at that station. By direction of the Secretary of War. Par. 1, S. O. 27, A. G. O., Washington, February 3, 1891.

Capt. Alonzo R. Chapin, Asst. Surgeon (Ft. Yates, N. D.), is granted leave of absence for one month, with permission to apply to the Adjutant General of the Army for an extension of one month. Par. 3, S. O. 17, Dept. of Dakota, St. Paul, Minn., January 31, 1891.

Capt. William B. Davis, Asst. Surgeon U. S. A., leave of absence for seven days granted by O. 2, Ft. Preble, Me., February 4, 1891, is hereby extended twenty-three days, with permission to apply to the Adjutaut General of the Army for a further extension of one month. Par. 2, S. O. 22, Hdqrs. Div. Atlantic, Governor's Island, N. Y., February 5, 1891.

Capt. James C. Merrill, Asst. Surgeon, is relieved from duty at Ft. Reno, Oklahoma Ter., and will report in person, at the earliest practicable date, to the Surgeon-General U. S. A., in this city, for duty in his office. By direction of the Secretary of War. Par. 5, S. O. 29, A. G. O., Washington, February 5, 1891.

Major William D. Wolverton, Surgeon U. S. A., granted leave of absence for one month, to take effect on or about February 15, 1891. Par. 2, S. O. 15, Dept. Platte, Omaha, Neb., February 7, 1891.

Asst. Surgeon R. W. Johnson, U. S. A., granted leave of absence for one month, to take effect on or about February 10, inst. Par. 1, S. O. 16, Dept. Ariz., Los Angeles, Cal., February 4, 1891.

Official List of Changes in the Medical Corps of the U. S. Navy, for the Week Ending February 14, 1891.

P. A. Surgeon E. W. Auzal, detached from U. S. S. "Boston," and to U. S. S. "Lancaster."

P A. Surgeon T. C. Craig, detached from "U. S. S. "Vesuvius," and to U. S. S. "Boston."

Asst. Surgeon W. C. Braisted, detached from hospital, Hot Springs, and to U. S. S. "Vesuvius."

P. A. Surgeon H. B. Fitts, ordered to the Army and Navy Hospital, Hot Springs.

Asst. Surgeon W. F. Arnold, ordered to the U. S. S. receiving ship "Vermont"

Asst. Surgeon N. J. Blackwood, detached from the U. S. S. "Vermont," and to "Newark."

P. A. Surgeon Richard Ashbridge, ordered to the Navy Yard, New York.

Asst. Surgeon J. H. North, detached from Navy Yard, New York, and to the U. S. S. "Lancaster."

Official List of Changes of Stations and Duties of Medical Officers of the U. S. Marine-Hospital Service, for the Two Weeks Ending February 7, 1891.

Surgeon H. W. Sawtelle, detailed as member of Board, Revenue Marine Service, January 26, 1891.

Surgeon H. W. Austin, detailed as Chairman of Board for physical examination of officers of Revenue Marine Service. January 28 and February 6, 1891.

P. A. Surgeon W. A. Pettus, detailed as Medical Inspector of Immigrants, Port of Boston, Mass., January 29, 1891.

P. A. Surgeon G. M. Magruder, detailed as Recorder of Boards for physical examination of officers of Revenue Marine Service, January 28 and February 6, 1891.

P. A. Surgeon J. J. Kinyoun, detailed for special duty at Berlin, Germany, January 26, 1891.

Asst. Surgeon J. F. Groenevelt, to proceed to Cape Charles Quarantine for temporary duty. February 7, 1891.